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Psychological and somatic experience of the climacteric and postmenopause : predicting individual differences and help seeking behaviour.

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for the degree of Doctor of Philosophy.

PSYCHOLOGICAL AND SOMATIC EXPERIENCE OF THE CLIMACTERIC AND POSTMENOPAUSE: PREDICTING INDIVIDUAL DIFFERENCES AND HELP SEEKING BEHAVIOUR.

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ABSTRACT

This study examines the nature and prevalence of psychological and somatic symptoms during the climacteric and postmenopause. The role of psychosocial factors in explaining reactions to the menopause is investigated. After reviewing the relevant literature, four major studies are presented.

A questionnaire was developed to examine the relationships between symptoms, menopausal status and age in a cross-sectional design. 850 women aged between 45 and 65 years from a non menopause clinic sample, were sent the postal questionnaire. A preliminary investigation of attitudes and beliefs about the menopause was included. As expected hot flushes increased in peri and postmenopausal women. However, small but significant increases in reports of depressed mood, sleep and sexual problems were also evident. The relative roles of psychological, social and biological factors were considered as predictors of individual differences in symptom experience.

Hypotheses suggested by these results were tested in a prospective longitudinal study of 56 menopausal women, who were sent questionnaires three years later. Increases in hot flushes and depressed mood were confirmed. Depressed mood could be best explained by past mood state, stereotypic beliefs and social factors.

The role of hormonal factors was examined in a subsample of women attending a menopause clinic. There were no significant associations between depressed mood and oestradiol or gonadotrophic hormone levels.

Finally, the characteristics of women seeking medical help during the menopause were examined by comparison of the non-clinic sample with a menopause clinic sample. Psychological factors predicted help seeking behaviour more strongly than others including hot flushes and social variables.

In discussion biological and social explanations of the increased prevalence of depressed mood were considered and a psychological model of experience of the menopause and help seeking behaviour was presented.

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CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

General Introduction

(i) Definitions

The menopause is primarily a physiological event marked by cessation of the menstrual cycle, experienced by all women who have not undergone earlier surgical intervention or disease. It has been defined as the "permanent cessation of menstruation resulting from loss of ovarian follicular activity" (WHO, 1981).

The criteria for identifying stages in the passage through the menopause are diverse and rely on retrospective self-defined reports and recalled information regarding menstruation (Goodman et al, 1977). Usually the menopause can be identified with confidence after one year following the last menstrual cycle. The menopause is often preceded by a phase of irregular menstruation which makes it difficult for women to know at the time if this is her last. Other causes for a period of amenorrhea such as disease, hysterectomy and weight loss need to be excluded.

The term climacteric refers to the period of gradual reduction in ovulation and decrease in output of ovarian hormones. The World Health Organisation (1981) define the climacteric as "the period immediately prior to the menopause (when the endocrinological, biological and clinical features of approaching menopause commence) and at least the first year after the menopause." The climacteric is therefore a gradual process spanning the transition between the reproductive and the non reproductive life stages, which may span the

years between 40-60. The duration of these stages varies among women and their precise definition, such as the beginning of the climacteric, remains problematic.

The internationally accepted classification (Jaszmann, 1973) which will be used here defines a woman as postmenopausal if she has not menstruated during the previous 12 months; as premenopausal if she is still menstruating regularly and as perimenopausal or menopausal if menstruation has become irregular but has occurred during the previous 12 months. The assessment of menopausal status relies on these criteria, however diagnosis of ovarian functioning (plasma follicle stimulating hormone and luteinizing hormone levels) can be made by hormone assays (Studd et al, 1977). In addition in some studies self-definition of menopausal status is used to examine how women label themselves. Although menopause refers to the final menstruation it is more relevant to conceptualize menopausal status, not as a single point in time, but as a process or a series of stages from pre to postmenopause. Kaufert et al (1987), examining changes in menstrual status in a longitudinal study, found that women do not necessarily progress steadily from stage to stage. For example some may oscillate between pre and perimenopausal stages. While the authors accept that the existing definitions of menopausal stages are too useful to discard, they propose that the menopause should be reconceptualized as a continuum. In the present studies menopause will be used as a general term for convenience sake to refer to climacteric and postmenopausal women, unless specific phases are referred to.

The average age for the menopause to occur in most western countries is 50-51 years, median 50.78 in Britain (McKinlay &

Jefferys, 1974). Menopause occurring before the age of 45 years may be considered premature (Jacobs & Murray, 1976). A number of factors have been found to be associated with age of menopause such as smoking, obesity or height/weight ratio, marital status, and age at last pregnancy (Brand & Lehert, 1978; Neri et al, 1982). In spite of differing opinions it is now generally accepted that the age of menopause has not changed markedly during the past century (Utian, 1980).

It is the climacteric or menopausal process which coincides with what has been delineated as middle-age (Neugarten, 1979). It may be significant that the colloquial term used for the menopause - change of life - refers to many physical, psychological and social changes which may occur in this age band. Thus the menopause may be described as a marker in a more gradual process of ovarian decline which takes place concurrently with age changes and sometimes important psychosocial transitions. Symptoms or distress experienced during this process have been attributed to the 'menopausal syndrome' - a frequently used but misleading term. Symptoms quoted under the heading of 'menopausal complaints' range from vasomotor symptoms (hot flushes, night sweats) to longer term physical changes (vaginal atrophy, osteoporosis), and include numerous less tangible psychological and somatic symptoms (insomnia, depression, skin/hair changes, headache, irritability, loss of libido, weight gain, palpitations, tension, tiredness, poor memory and concentration). Hot flushes and night sweats are the most frequent and characteristic symptoms associated with the peri and postmenopause. The validity of the term menopausal syndrome is the subject of Chapter 2.

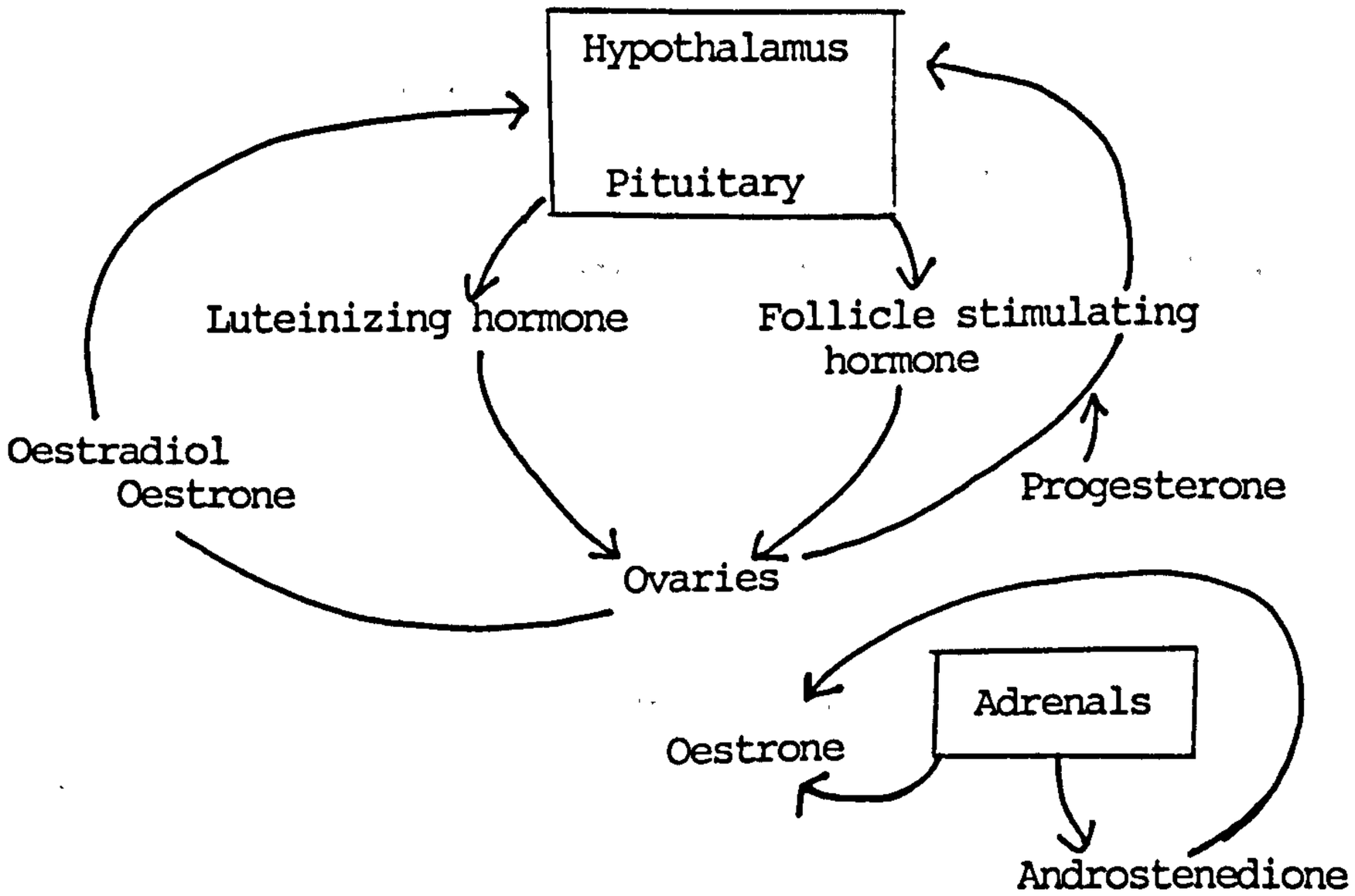
(ii) Physiological changes during the menopause

(a) Hormone changes

In the reproductive years there is normally a cyclical production of gonadal steroids (oestrogen and progesterone) by the ovaries. This (menstrual) rhythm is maintained by cyclical release of gonadotrophic hormones (follicle stimulating hormone (FSH) and luteinizing hormone (LH)) from the pituitary. Both negative and positive feedback of gonadal steroids in turn control gonadotrophin secretion (see Fig 1).

Figure I.

Feedback system of gonadotrophic hormones and oestrogen and progesterone production



Physiologically the menopause represents a change in t ovarian function, with gradual cessation of ovulation and a decreasing output of ovarian hormones (Hutton et al, 1979). The negative feedback

effects are lost and as a consequence gonadotrophin levels in the blood begin to rise. As the menopause approaches there is an earlier and greater rise in FSH than LH. The maximal levels of FSH are recorded three to five years after the menopause when they are as much as 15 times higher than during the normal menstrual cycle. With increasing postmenopausal age FSH levels fall to premenopausal levels. LH levels also peak, but less markedly, at about five years after the menopause and continue to decrease with age (Chakravarti et al, 1976).

During the reproductive years the major circulating form of oestrogen is oestradiol produced by the ovary. There are however other types of oestrogen and also non-ovarian sources. The most important of these is oestrone secreted directly in small amounts by the ovary and adrenal glands but also produced by peripheral conversion of another adrenal steroid, androstenedione (Studd et al, 1977). Although the absolute rate of production of oestrone changes little after the menopause, it contributes a much greater proportion of net oestrogen production. There is considerable individual variation in hormonal changes through the climacteric, including differences according to amount of body fat. Greater fat mass is related to higher production of oestrogen (Peters, 1979).

Ovarian progesterone production is similarly reduced after the menopause, but there is some secretion maintained by the adrenal glands (Vermeulen, 1976). Testosterone levels remain essentially unchanged after the menopause, being produced by the adrenal glands and by conversion of androstenedione (Studd et al, 1977).

The involvement of the hypothalamus in the regulation of these steroid hormones, via complex feedback mechanisms, means that biogenic amines, for example dopamine, noradrenalin, and serotonin, which are

involved in hypothalamic release and inhibition, can therefore modify steroid output (Coulam, 1981). The effects of opioid peptides, such as enkaphaline and B-endorphin, have recently been investigated in the region of the hypothalamus as possible mediators of vasomotor symptoms (Lightman, 1982). Thus although the major change during the menopause is specifically at the ovaries, the process may be accessible to modulation by central nervous system mechanisms.

(b) Biological changes

Here hot flushes, the typical vasomotor symptom will be described, as well as the longer term consequences of reduced oestrogen levels such as osteoporosis. The term hot flushes will be used to include night sweats which are essentially hot flushes at night. Hot flushes are characterized by hot sensations in the face, neck and chest lasting a minute or two and are often followed by a chill and perspiration (Bates, 1981). In one of the few descriptive behavioural studies the frequency and spread of sensations was found to be extremely variable both within and between individuals (Voda, 1981). It is estimated from epidemiological studies that approximately 75-85% of women experience hot flushes for over a year; approximately 50% for two to five years and approximately 20-25% have severe symptoms lasting for more than five years (McKinlay & Jefferys, 1974; Thompson et al, 1973). Kaiser (1984) investigating the natural progression of hot flushes in a clinic population found that 50% of symptoms stopped after 2.9 years, with mean duration of 5.4 years. Twenty to 25% of women do not seem to experience hot flushes. This is thought to be because of higher levels of circulating oestrone produced by conversion of other steroids. Hot flushes are associated

with a sudden and transient increase in sympathetic nervous system activity with an increase in heart rate and sometimes palpitations (Sturdee et al, 1978). The exact aetiology is unknown. There is not a direct relationship between oestrogen levels and vasomotor symptoms (Studd et al, 1977).

Recent evidence indicates that the onset of a hot flush immediately follows a pulsatile release of pituitary LH and it has been hypothesized that both are triggered by a common opiate sensitive mechanism (endorphin) probably in the hypothalamus (Lightman, 1982). Oestrogen withdrawal is associated with flushing but it is not a significant factor (Bates, 1981). The hot flush is one of the few menopausal symptoms which is directly and significantly improved by oestrogen therapy (Bates, 1981; Hutton et al, 1979; Dennerstein & Burrows, 1978). After withdrawal of oestrogen therapy a return of symptoms can occur for six months to one year (Jensen & Christianson, 1983). There is as yet no way of predicting who will experience severe hot flushes.

In contrast to these temporary vasomotor symptoms there are gradual changes in the urogenital tract, that is in the principal target organs of oestrogens. The vaginal wall becomes thinner and drier. The uterus diminishes in size and the muscle tone of the pelvic floor diminishes, leading in some cases to increased urinary frequency (Studd et al, 1977). Vaginal irritations and infections and dyspareunia (painful intercourse as a result of vaginal dryness) are reported in clinic populations and have been found to respond to oestrogen treatment (Campbell, 1976).

Osteoporosis or accelerated loss of bone mass can occur with reduced oestrogen output. The normal age-related loss of bone mass is

accelerated following the menopause (Lindsay et al, 1976) and contributes to the higher incidence of bone fractures in older women (Nordin et al, 1980). Oestrogen therapy can prevent the menopausal acceleration of bone loss (Vaughn & Hammond, 1981). However long term treatment is recommended to maintain the effects. It is estimated that 10% of women will be severe sufferers in later life (Rybo & Westerberg, 1971). There is evidence that women of small stature, fair complexion and with a family history may be most at risk. Techniques for assessing small changes in bone density are being currently investigated (Stevenson et al, 1987).

It is the psychological and minor somatic experiences, which are often attributed to the menopause, that are less clearly understood in terms of relation to physiological or alternative mechanisms.

(iii) Historical perspectives on the menopause

The physiological changes that occur during the menopause, as a consequence of declining ovarian function, take place within a socio-cultural context. Attitudes to and explanations of the menopause, its psychological significance for women and its treatment are influenced by the status and role of middle-aged women in society as well as economic and political factors. A brief survey of the historical and anthropological literature should provide an understanding of the development of current medical and feminist/sociological attitudes to the menopause.

The menopause has been described as a Western culture-bound syndrome (Wilbush, 1985). We know little about the menopausal

transition in non-Western, non-industrial societies. The available anthropological evidence suggests that response to the menopause is conditioned by the cultural context which shapes the pattern of women's role (Flint, 1975; Kaufert, 1982a,b; Beyenne, 1986). Women's former status is often believed to be reversed at the menopause (Van Gennep, 1906). For example in societies with rigid menstrual taboos the postmenopausal woman loses her reproductive role but is given more freedom to join in male activities (Paulme, 1963; Middleton, 1966). There has been a tendancy, however, for Western writers to romanticize the role of women in non-industrial societies in the background of a dearth of good cross-cultural research (see Chapter 3 for discussion of cultural factors).

In contrast to the view that menopause can be a positive stage, the bulk of Western clinical and anecdotal literature emphasizes its negative implications. In his article "La Menespausie (a term coined by Gardanne, 1816) - the birth of a syndrome" Wilbush (1979) traces the historical development of contemporary ideas about the menopause. The menopause has been described as a relatively recent phenomena assuming that in the past few women actually reached 50 years of age. However, Wilbush argues that this idea is erroneous since life expectancy has been over 50 years for a proportion of women for the last few centuries; instead he seeks psychosocial explanations.

Understanding of the physiology of the menstrual cycle developed during the 19th century and the role of the ovaries in the menopausal process was not studied systematically until the turn of the century. Prior to this, menstrual flow was classically felt to preserve youth by purging the body of poisons. This attitude concurs

with the traditional association of the womb with negative emotions and the almost universal fear of menstruation across societies.

The menstrual taboo is understood by psychodynamic writers as being a reaction to men's fear of castration and envy of womens' power of reproductive capacity, and by sociologists as societies' way of maintaining women's inferior status (Weideger, 1975). Clearly these explanations are not inconsistent and perhaps represent different levels of explanation of the phenomena.

The purging of menstrual flow to preserve youth and beauty was practised in Roman times and in post Rennaisance Europe, mainly by older women. The practice became more widespread when the status of women increasingly depended on their attractiveness and sexual capacity which was the case in 16th and 18th century Europe. It was not until the late 18th century that women began to consult doctors complaining of retention of menstrual flow and also of haemorrhages. It seems that medical practitioners were initially consulted by middle class women for whom the menopause had become a culturally unacceptable event.

Since the last century there has been a rapid growth in medical interest and medical literature. Although disparate theories emerged, from psychodynamic to hormonal, the underlying assumption of the menopause as a pathogenic process became widely held. In addition increasing numbers of psychological and somatic symptoms became attributed to what evolved as the menopausal syndrome.

Psychodynamic writers emphasized the effects of loss of sexuality and femininity (Deutsch, 1945; Benedek, 1950) and the re-evoking of Oedipal conflicts (Fessler, 1950). Freud (1932) suggested that increased libido was experienced as a result of lowered

ego strength. These views imply that previous personality problems may predispose women to psychological disturbance at this time, but also associate the menopause with considerable emotional distress.

The influence of psychiatry strongly reinforced the commonly held link between the menopause and depression or insanity. V Krafft Ebbing (1877) considered that the climacteric could cause psychosis and personality changes, for example irritability, discontent, quarrelsomeness. The diagnosis of involutional melancholia became widely used (Kraepelin, 1896), the menopause being taken as a crucial aetiological factor. Early accounts were also given of changes in sexual drive, usually a decline but also increases or "crises erotiques" were reported (de Mussy, 1870). Such views, although modified in subsequent literature, are still prevalent in their influence.

The majority of early writers regarded hormone changes as an important aetiological factor in the cause of the menopausal syndrome. However, psychotherapy and psychiatric treatment with psychotropic medication were also advocated. Conversely it has also been suggested that psychological symptoms could be underdiagnosed by doctors when viewed as an inevitable part of a woman's condition (Kaufert, 1982a).

With the development of more sophisticated scientific and gynaecological procedures in the past 50 years, understanding of the endocrinology of the menopause has increased and the use of oestrogen therapy as a treatment for menopausal symptoms has become widespread. The pioneering work on oestrogen therapy was carried out in America in the 1950's and 1960's by British born Dr. Robert Wilson, who published the results of his research in his best seller 'Feminine Forever' (1966). His negative view of the menopause as a deficiency disease

which requires medical treatment was perpetuated by such statements as:

'the woman becomes a eunuch';

'no woman can be sure of escaping the horror of this living decay';

'she is incapable of rationally perceiving her own situation' and

'enlightened physicians who see the menopause for what it is - a preventable and curable deficiency disease - are still in the minority'.

He advocated adequate oestrogen supply from puberty to the grave (Wilson & Wilson, 1963) to alleviate 'emotional and physical decline'. Menopause as a disease was emphasized by drawing an analogy between menopause and diabetes! Since then women were reported to actively seek oestrogen therapy to improve skin, sexual relationships, feelings of well being as well as to prevent cancer, osteoporosis, arteriosclerosis and hot flushes (Utian, 1980). Recently there has been a shift of emphasis from the treatment of vasomotor symptoms to preventative and prolonged treatment of osteoporosis. With social and health changes an extended middle aged period is more common (Neugarten, 1979). The term young-old for this life stage, coined by Neugarten, seems to reflect society's uncertainties about when natural ageing should be accepted. The controversy as to whether ovarian decline should be considered a natural process or an unselected consequence of longevity remains (Worley, 1981).

In contrast to this view, with the influence of the women's movement in the 1960s and 1970s, the availability of the contraceptive

pill and increased education about health care as well as fears about cancer risks of oestrogen therapy in the late 1970s, another view of women and the menopause developed, particularly in North America (Boston Women's Health Collective 1976; Reitz, 1977). These feminist authors view the menopause as a natural event and menopausal symptoms as culturally defined. Generally a sociological theory of the menopause is held. Stereotypes and attitudes about the menopause and women's social role lead her to experience distressing social readjustments which are not given social status.

They do not argue that women should not have symptoms at this time of life but that physical or psychological symptoms should not be automatically attributed to the menopause. Self help groups and non-medical approaches are advocated. The menopause is viewed as a normal developmental stage, offering an opportunity for growth.

Women today are therefore presented with at least two competing interpretations of the menopause - both of which are social products or modern myths (Kaufert, 1982a). The ambiguity of 'menopausal symptoms' makes the event particularly vulnerable to stereotyping.

The medical view in its extreme is based on biological determinism suggesting that hormonal changes lead to psychological and somatic symptoms and oestrogen therapy is the cure. In a sense the menopause is redefined as a problem of declining oestrogen levels (Dalton, 1978; Furuhjelm & Fedor-Freybergh, 1976). The doctor is in control and the woman passive. In contrast the feminist/sociological view rejects any reference to deficiency or disease and is based on socio-cultural determinism. Again taking the extreme view, Flint (1975) views menopausal symptoms as entirely socially relative.

Medical treatment is resisted regardless of the type of symptoms experienced and self reports of experiences are not considered as data but dismissed as reflecting social stereotypes. It is interesting that both views use cancer as an argument to support their beliefs, for example, that oestrogen therapy causes cancer or that avoiding medical treatment leads to increased risks.

There are several implications of the development of these stereotypes. Firstly, interdisciplinary research has been hampered by such polarized views. Secondly, after reading the literature, which is based largely on clinical impressions, one understands very little of what the average woman does think about the menopause or experiences at this time. Both stereotypes are created and perpetuated by middle class men and women. Thirdly, the awareness of these stereotypes should be taken into account in assessing menopausal experiences. Their effects have been recognised in menstrual research (Parlee, 1974; Sherif, 1980). Correlates of attitudes to, and stereotypic beliefs about, the menopause could usefully be examined.

In conclusion, whether individually accurate or not, a negative expectation of the menopause seems to continue to prevail in our culture (McKinlay & McKinlay, 1973) and this will influence our attitude and experience. The two main models or myths about the menopause - medical and feminist/sociological - have been described; probably neither of which reflect the actual experiences of women. Clearly a model incorporating the interaction of biological and socio-cultural factors within a single conceptual framework is needed in which the needs of different sub-groups of women can be recognised. From the current discussion the need to incorporate cognitive factors into such a model is essential. It is the minor psychological and

somatic symptoms that are more subject to the influence of cognitive factors. It would be interesting to examine womens' attributions of such symptoms at this stage of life when so many concurrent life adjustments may be taking place.

(iv) The need for a psychological approach

Unlike research on menstruation and pregnancy the impetus for systematic research on the menopause has been slow to develop. During the past 30-40 years several different branches of research have contributed to our current understanding of the menopause. Firstly with the growth of general population studies in the 1960's several epidemiological surveys were undertaken exploring parameters such as age at menopause and symptom reports (McKinlay & Jefferys, 1974; Jaszmann et al, 1969). Secondly the development of hormone replacement therapy has had a major impact on medical attitudes to the menopause and its treatment, resulting in endocrinological studies and treatment trials using oestrogen therapy. Thirdly the influence of the women's movement, particularly in the USA, has led to increased health awareness and the formation of self help groups as an alternative to medical care. Finally, research on the effects of psychosocial factors during mid-life, rather than the menopause as such, have been carried out by psychologists, sociologists and anthropologists.

The development of these rather disparate pockets of research, by varied disciplines from endocrinologists to anthropologists each with their own theoretical views of the menopause, has impeded the progress of interdisciplinary research. It is not surprising, as McKinlay & McKinlay pointed out in 1973, that some of the basic

questions which would clarify our understanding of the menopause have yet to be answered. Although the numbers of studies has increased since then, because of methodological difficulties, such as in defining the menopausal syndrome, and lack of sophisticated research designs, we are little nearer understanding how the average woman experiences her menopausal years.

Clinical psychologists have been slow to study the menopause - only one systematic study (Greene & Cooke, 1980) being regularly cited in the literature. There would be several advantages of a psychological approach. Firstly, psychology spans the disciplines necessary to understand the many influences on the menopause. Being a normal developmental stage involving a complex interaction of physiological, affective, cognitive and behavioural factors it is relevant to the subject matter of psychology. It is the psychological aspects of the menopause which have been most neglected in research. In addition, the area lacks the methodological approach and statistical method which psychologists could provide.

With the currently lowered birth rates an increasing number of people will spend larger proportions of life in middle to old age. In 1978, 11% of all women in Western Europe were aged between 45-55 years (Utian, 1978). It has been consistently reported that women report higher levels of psychological and somatic symptoms (Briscoe, 1982), are high users of medical services (Verbrugge, 1979; Nathenson, 1975) and take a higher proportion of psychotropic drugs than men (Cooperstock, 1978). Women attending gynaecological clinics have been found to have particularly high rates of psychological distress and psychiatric morbidity, with estimates ranging from 29-52% (Byrne, 1984; Smith, 1979; Ballinger, 1975, 1977; Worsley et al, 1977). In

recent, well argued reviews, it has been concluded that this sex difference probably represents a real difference in symptom experience rather than purely an artifact of willingness to report or health care behaviour (Briscoe, 1982, Weissman & Klerman, 1981). Contrasting hypotheses proposed to account for these differences have relied upon either biological explanations, such as hormonal differences (Dalton, 1978) or differences in socialization, for example learning to be more aware of feeling states (Briscoe, 1982) or increased stress associated with womens' social roles (Weissman & Klerman, 1981).

The polarity of theoretical views - biological vs sociological - offerred to explain psychological distress and help seeking behaviour in these women has led to conflicting advice given to women and health care professionals, for example gynaecologists, psychiatrists and general practitioners (Osofosky & Seidenberg, 1970). There is clearly a need to examine the phenomenology of psychological and somatic experiences in women and their association with hormonal and psychosocial factors.

Menopause clinics are growing in number since Utian (1977, 1980) first described the concept of an interdisciplinary clinic designed to provide medical care and oestrogen therapy. In 1981 there were 21 such clinics in the UK catering for 3-4% of the total population of menopausal women (Whitehead, 1981). In 1983 guidelines for community menopause clinics were prepared by the Family Planning Association (Craig, 1983). Discussing the management of patients she suggested "the essence of clinical management is to treat unacceptable menopausal symptoms, once these have been disentangled from other psychoneurotic symptoms that may be common at this time of life". It is also acknowledged that this is a difficult task and would seem to

be premature in view of poor understanding of the relationship of psychological factors to menopausal status. Utian (1981) at the Third International Congress on the menopause emphasized the need for the development of a menopause questionnaire to enable assessment of symptoms for screening and research in different centres. The impetus for the current research has come from my work as a clinical psychologist with medical and nursing staff at the Menopause Clinic at King's College Hospital. It became apparent that the following areas required more research before adequate guidelines for assessment and treatment of menopausal women can be formulated and before related clinical services could be developed, such as staff training and self help groups.

1. The phenomenology of psychological and somatic experiences during the menopausal years has not been studied in sufficient detail using adequate statistical methods in non-clinic as well as clinic populations.

2. The extent to which these psychological/somatic experiences may appropriately be attributed to biological changes or ageing or psychosocial factors is unclear. A more complex interactive model seems necessary to account for the range of factors - biological, cognitive, social - involved.

The evidence as to whether psychological or somatic symptoms are experienced to a greater extent during the menopause and their possible aetiological mechanisms will be reviewed in Chapters 2 and 3.

CHAPTER 2

The Nature of Psychological and Somatic Experience during the Menopause 1. Prevalence of Symptoms

The complex relationships between psychological, somatic and vasomotor symptoms, and menopausal status are not yet fully understood. Traditional assumptions, derived from clinical experience and anecdotal reports, have been reinforced and perpetuated. In the last 20 years, however, more systematic evidence has accumulated addressing these issues. With the development of health and population studies, there has been an increase in epidemiological surveys examining age of menopause and associated symptoms. A second source of data can be taken from studies of psychiatric morbidity during the menopausal years. Studies of sexual behaviour during the menopause are also included in this chapter. However, before describing the more recent studies, several methodological points require consideration.

(i) Methodological issues

The typical design in epidemiological studies is cross-sectional with lists of symptoms being given to defined groups of climacteric and postmenopausal women. Usually menstrual criteria are used to classify women into climacteric and postmenopausal groups, however inconsistent methods have been used. For example, Bungay et al (1980) classified women according to age alone and in another study women defined their own menopausal status (Neugarten & Kraines, 1968).

Greene and Cooke (1980) described women in their late thirties as climacteric.

Assessments of psychological and somatic symptoms generally rely upon subjective reports. Adequately standardized symptom scales, with known reliability and validity, have rarely been used. Another problem is that the time frames used in questions tended to be ill-defined or too long, for example, symptoms experienced "during the menopause" (Neugarten & Kraines, 1965). The choice of symptoms and their classification into psychological or somatic and psychosomatic has been inconsistent (Kaufert & Syrotuik, 1981). As shown in Table I palpitations were categorized as psychological by Greene (1976); psychosomatic by Neugarten & Kraines (1965) and vasomotor in Van Keep's study (1970). Many of the symptom lists were modifications of either the Blatt Menopausal Index (11 items) (Blatt et al, 1953) or the Neugarten and Kraines (1965) checklist (28 items) - (see Table 1). In subsequent modifications different symptoms were omitted and retained by researchers, for example McKinlay and Jefferys, (1974); Van Keep (1970). In three recent studies (Greene, 1976; Kaufert & Syrotuik, 1981; Mikkelsen & Holte, 1982) multivariate techniques have been used in order to guide symptom groupings. There has been an emphasis on vasomotor and somatic symptoms with generally poor assessment of psychological symptoms, in particular psychological or psychiatric morbidity. Even if a group of psychological symtoms are more prevalent during the perimenopause the degree and nature of psychological disturbance is unclear. In only two surveys has the GHQ (General Health Questionnaire (Goldberg, 1972)), a standardized instrument, been used (Ballinger, 1975, 1977; Gath et al, 1987).

A problem which has rarely been adequately dealt with is the

Table 1

Comparison of symptom questionnaires used in three cross-sectional surveys of the menopause

(1953) Blatt Menopausal Index	(1965) Neugarten & Kraines Checklist	(1976) Greene's Index
Vasomotor (hot flushes, night sweats, perspiration)	Somation symptoms	Somatic symptoms
Paresthesia (tingling of the extremeties)	Hot flushes	Feeling dizzy or faint
Insomnia	Cold sweats	Pressure or tightness in head or body
Nervousness/irritability	Cold hands/feet	Parts of body feel numb/tingling
Melancholia (depression)	Aches in back of neck and head	Weight gain
Vertigo (dizziness)	Flooding (menstrual)	Headaches
Fatigue	Breast pains	Blind spots before eyes
Arthralgia (rheumatic pain)	Constipation	Feelings of suffocation
Headaches	Diarrhoea	Psychological symptoms
Palpitations	Skin crawls	Tired/lacking in energy
Skin crawling sensations	Rheumatic pains	Heart beating quickly/ strongly
	Numbness and tingling in extremeties	Worrying needlessly
	Weight gain	Tense, wound up
	Psychosomatic symptoms	Loss of interest in things
	Dizzy spells	Unhappy or depressed
	Headaches	Attacks of panic
	Blind spots before eyes	Poor concentration
	Tired feelings	Sleep disturbance
	Pounding of heart	Excitable
	Psychological symptoms	Crying spells
	Feelings of suffocation	Vasomotor symptoms
	Feeling blue or depressed	Hot flushes and sweating
	Excitable	Aches in back of neck and skull
	Can't concentrate	Cold hands & feet
	Trouble sleeping	
	Crying spells	
	Feelings of panic	
	Worry about body	
	Worry about nervous breakdown	
	Irritable and nervous	
	Forgetfulness	

overlap between age and menopausal status. Menopausal status (pre, peri, post) overlaps with age considerably, so that taking age as the independent variable is misleading. Since women of different ages will be compared in cross-sectional studies, factors associated with age such as memory, insomnia, physical illness, socio-cultural attitudes, life styles and other secular changes need to be examined. In recent longitudinal studies of ageing, fewer age changes have been demonstrated than were expected from earlier cross-sectional research in which age changes and generation differences were confounded (Chown, 1983). Hallstrom (1973) in a thorough psychiatric study, is the only researcher to attempt to deal with this issue in his design. Clearly longitudinal studies are needed to overcome these difficulties.

Finally, when surveys are eliciting retrospective reports and when subjects are aware that the purpose of the study is to examine menopausal symptoms the likelihood of bias in reporting is increased. Beliefs and stereotypes about the menopause may act as a filter through which symptoms are viewed and reported, in a similar way as has been found in studies of menstrual symptom reporting (Parlee, 1974). Bias and expectations could be further reduced by not focussing solely on negative symptoms that have been held to comprise the menopause syndrome.

In reviewing epidemiological studies only the more recent and better designed surveys are included and others, for example where response rates are too low, for example 33% (Polit and La Rocco, 1980), are ommitted.

(ii) Epidemiological surveys

In one of the first general population surveys, Neugarten and Kraines (1964) sampled 460 American women across five bands from 48-65 years using a checklist including items from the Blatt Index (see Table 1). Menopausal status was self defined. A significant increase in somatic and psychosomatic symptoms was found in women claiming to be menopausal - from the definitions used these would be considered perimenopausal. Prevalence of psychological symptoms did not increase in postmenopausal women. Unfortunately in the calculation of symptom prevalence pre and postmenopause groups, ie. women who may be expected to have different experience associated with age as well as other factors, were pooled and compared to menopausal women. Similar findings were reported by Jaszmann et al (1969) in the Netherlands. In a large well sampled survey, they studied the questionnaire responses (Blatt Index) of 4,706 women aged between 42-62 years, divided into pre, peri and postmenopausal categories. Vasomotor symptoms were found to have maximal prevalence during the period 1-2 years postmenopause. Five symptoms - tiredness, irritability, headache, depression and mental imbalance - increased in prevalence during the perimenopause. Other somatic symptoms showed no relation to menopausal status.

In the 1970's two British studies, carried out by sociologists in London (McKinlay and Jefferys, 1974) and in Aberdeen (Thompson et al, 1973), failed to support the above findings. A similar design was used in both studies. Postal questionnaires (including 11 items derived from Blatt Index) were sent to women selected from 10 general practices. The age range was larger in the Scottish study, 40-60 years compared with 45-54 years in London. In both studies, hot flushes were more prevalent at the menopause and immediately

postmenopause affecting 75% (London) and 74% (Aberdeen) of women. It is interesting that in the London study 18% of menstruating women reported having hot flushes. Approximately 30-50% of women reported feeling depressed and experienced other psychological and somatic symptoms. These symptoms were found to be associated with each other in a cluster analysis, but <u>not</u> with menopausal status or hot flushes. No estimation of the probablility of these associations occurring by chance was made.

In contrast Ballinger (1975), using the General Health Questionnaire (GHQ, Goldberg, 1972) in a survey of 537 Aberdeen women aged 40-55 years, found an increased prevalence of psychiatric cases at the perimenopause. A similar pattern was found for hot flushes but the peak prevalence for these was slightly later. The psychiatric prevalence for the whole group was 29% which may be compared with her finding of 52% in an Out-patient gynaecology clinic (Ballinger, 1977). However, these results are complicated by the fact that GHQ scores may have been inflated by items reflecting somatic and vasomotor symptoms (Kaufert & Syrotuik, 1981). In a further analysis of the psychiatric cases Ballinger (1976) reported that hypochondriasis and insomnia were more common in perimenopausal women; such symptoms may well be associated with vasomotor changes.

In a more recent study by a community physician and others in Oxford (Bungay et al, 1980) several methodological improvements were attempted. Again postal questionnaires were sent to 1,120 women, aged 30-64 years, but here a control group of 510 men was included. Subjects did not know the purpose of the study. Unfortunately, however, they made comparisons across age rather than menopausal status. Forty individual questions were considered and the trends

across age bands compared for men and women. Again vasomotor symptoms increased in the 50-55 year old age group. Some symptoms (irritability, backache, aching breasts) decreased during the 50+ age range, whereas other symptoms (loss of appetite, skin sensations, headaches, difficulty with intercourse) showed no consistent difference between men and women. Several "minor mental symptoms" (difficulty in making decisions, loss of confidence, anxiety, forgetfulness, etc.) were shown to increase in the 45-50 age group, however, no statistical methods were used to assess the strength of this finding. The authors conclude that the results support the view that the menopause syndrome exists.

The first study by a psychologist using factor analytic methods to understand the relationship between symptoms was carried out by Greene (1976) in Glasgow. Fifty women, all patients attending a Hormone Replacement Therapy Clinic, completed a 40-item questionnaire based on the Neugarten and Kraines index. Twenty items which loaded on the three factors which were extracted and labelled 'vasomotor', 'psychological' and 'somatic' (see Table 1). This questionnaire was then used in a second study (Greene and Cooke, 1980) to examine symptom prevalence in a sample of 408 women (aged 25-64) taken from G.P. lists. It is a pity that the original questionnaire was standardized on a small clinic sample, these women being unrepresentative of the general population. In the second study no significant associations were demonstrated between menopausal status and psychological or somatic symptoms, however younger women (35-45 years), termed early climacteric, did complain of significantly more somatic symptoms. In a multiple regression analysis these symptoms were not associated with menopausal status; a life stress measure was

found to predict these symptoms more accurately.

Kaufert & Syrotuik (1981), following an excellent review of methodological issues in menopause research, carried out a pilot study of 148 women in Manitoba, Canada, using multivariate techniques. A general symptom list was used (Greenlick & Pope, 1974) and 11 symptoms were included from the menopausal index used in an International Health Foundation Study (1977). Four factors were felt to yield the most meaningful solution in a factor analysis. Items having high loadings on these factors were as follows: 1) tiredness, irritability, nervous tension, depression, trouble sleeping. 2) diarrhoea, upset stomach. 3) aches and pains, pins and needles in hands and feet. 4) hot flushes and night sweats. These factors were relatively independent. The authors found an association between vasomotor symptoms and menopausal status, but not for the psychological symptoms. In both Greene's and Kaufert & Syrotuik's studies the number of subjects is rather small in relation to the number of items being factor analysed.

In the 1980's several large scale studies with improved methodology are being developed using both cross-sectional and longitudinal designs. Kaufert (1984) in Manitoba and McKinlay & McKinlay (1986) in Massacheusetts, using similar designs and questionnaires, are following up large samples of women (4,150 and 8050 respectively) for 3-5 years. Lock (1986) has carried out a cross-sectional study of Japanese women using comparable methodology. In Norway, Mikkelsen & Holte (1982) and Holte (1987), using slightly different measures, but including hormonal data and gynaecological information, are also carrying out a prospective study of 200 women.

Mikkelsen & Holte (1982) used factor analysis in their

cross-sectional study and found that only vasomotor symptoms were associated with menopausal status, as did Greene & Cooke (1980) and Kaufert & Syrotuik (1981). In their factor of vasomotor symptoms vaginal dryness was included in addition to hot flushes and night sweats. The symptom clusters reported in these studies do not support the notion of a unitary menopausal syndrome but suggest that psychological and somatic symptoms are relatively independent of vasomotor symptoms with possibly independent aetiologies. Holte & Mikkelsen (1982) found that psychological and somatic symptoms were associated with reports of earlier menstrual problems rather than menopausal status or social factors. In this study it is not clear whether women were aware of the purpose of the study, and the time frame for symptom reporting used was twelve months which may lead to less reliable results than in studies using a two week time frame which has been adopted in the other studies since 1980. The prevalence of specific symptoms was not reported. Provisional follow-up data is becoming available which appears to confirm the cross-sectional findings (Holte, 1987).

Only preliminary data is available from the three large-scale studies using comparable questionnaires and methodologies in Manitoba, Massachusetts and Japan. The pilot Manitoba study has been described (Kaufert & Syrotuik, 1981). The methodology used in this study was discussed in detail by Kaufert (1984) and preliminary longitudinal data outlined in Kaufert & Gilbert (1986). Four hundred and seventy seven women completed six telephone interviews which took place over a period of three years. Vasomotor symptoms but not psychological symptoms were found to increase at peri and postmenopause. In addition depressed mood was also measured using a standardized

instrument - the Centre for Epidemiologic Studies Depression Scale (CES-D). Estimates of clinical depression did not increase with menopausal status but the pervasiveness of depressed mood was noted, affecting 29% of women at one interview or another.

In contrast, Lock (1986) in a cross-sectional survey, found a much lower level of symptom reporting in her Japanese sample of 1082 women. The questionnaire used by Kaufert was translated and extended to include more subtle and extensive use of language to describe somatic changes. On average 11 per cent of peri and postmenopausal women reported hot flushes compared with 39% in the Manitoba study. Although less prevalent, vasomotor symptoms were still significantly associated with menopausal status while somatic and psychological symptoms were not. The menopause, when self-defined, was associated with fears of old-age and some increase in symptomatology. Lock's study illustrates the necessity of close acquaintance with the culture, language and meaning of the menopause.

Cross-sectional results are available from the Massachusetts project (McKinlay & McKinlay, 1986). While using similar questionnaires and methodology to Kaufert in Manitoba, these authors did not examine symptom relationships using multivariate analyses. The main emphasis in this large project appears to be the study of general health trends and utilization of services. Data is presented in terms of numbers of symptoms reported, and pre, peri, postmenopausal samples are compared with women who have undergone artificial menopause. Overall, statistically significant differences were found for reporting two or more psychological symptoms, and two or more physical symptoms, between the above groups of women. The surgical menopause sample was clearly the most symptomatic, but

perimenopausal and to a lesser extent postmenopausal women experienced more symptoms than those still menstruating. Unfortunately separate comparisons between naturally menopausal groups (pre, peri and post) were not made. The authors interpret the increase in symptoms as being primarily associated with menstrual irregularities and vasomotor symptoms but this explanation is not examined empirically. They draw attention to the high rate of distress and symptom reports in women who have experienced not only surgical menopause (oophorectomy) but also hysterectomy without removal of the ovaries. The characteristics and particular needs of these women warrant further study.

In summary, that vasomotor symptoms (hot flushes, night sweats) are associated with cessation of menstruation can be taken to be confirmed and replicated in several studies. However, the relationship between psychological and other minor symptoms and menopausal status remains equivocal. Some researchers have found no increase in psychological symptoms (McKinlay & Jefferys, 1974; Thompson et al, 1973; Kaufert & Syrotuik, 1981; Mikkelsen & Holte, 1982) and others increases in minor psychological/somatic symptoms prior to the menopause (Jaszmann et al, 1969; Bungay et al, 1980; Greene & Cooke, 1980; McKinlay & McKinlay, 1986). The earlier studies suffer from methodological weaknesses. Research since 1980 has been methodologically more sophisticated. In these studies the findings tend to support the view that emotional and somatic symptoms do not increase during the menopause. The longitudinal results should enable more confident conclusions.

(iii) <u>Psychiatric studies</u>

Traditionally the menopause was presumed to produce an

increased risk of depression or more specifically a separate clinical entity of involuntional melancholia characterized by agitation and hypochondriasis rather than sadness and retardation.

Since the 1930's there has been little written about this syndrome and it's usefulness as a diagnostic category has been doubted (Kendell, 1976). Rosenthal (1968) reviewing 30 years of research and using data from studies on the symptomatology of depression, has shown that the classical symptoms of involutional depression are not more common in higher age groups and that they do not correlate with each other. This diagnosis is no longer included in the official American psychiatric association classification (DSM III) (1980) being subsumed under major affective disorders.

There is a dearth of information on the relationship between psychiatric disorder and menopausal status. Winokur (1973) studied 71 psychiatric in-patients aged between 20 and 80 years, and diagnosed as suffering from psychotic depression. He calculated the risk of occurrence of an episode of depression during the immediately postmenopausal years and found that there was no greater risk for depression during the menopause than during other times of the life span.

Studies of psychiatric epidemiology, using case registers, questionnaire field surveys and interview methods provide estimates of the prevalence and incidence of psychological disturbance in women across different age bands. The results vary considerably from study to study (Goldman & Ravid, 1980). From studies of psychiatric case registers prevalence rates for psychiatric disorder were found to rise steadily and reach a peak in the oldest age band. Incidence rates for affective psychosis increased in the 20-30's, remaining at a high rate

until 60-70's then decreased. For neuroses a high rate was found in the 20-30's followed by a gradual decrease thereafter, until the 70-80's (Wing et al, 1967; Adelstein et al, 1968). Spicer et al (1973) found that incidence of depression requiring admission to hospital showed no increase from ages 35 to 65 after which it decreased. However, when general practitioner rates were examined rather than psychiatric hospital attendance, the rates for neurosis remained high across all age bands between 25-65 years (Kessel and Shepherd, 1962). Studies of more minor psychiatric symptoms using questionnaire methods provide less conclusive results. In some surveys decreases in symptoms are found with age (Finlay Jones & Burvill, 1977; Comstock & Helsing, 1976). Schwab et al, (1973) on the other hand, found that younger and older people had more psychological symptoms than the middle aged. Sleep disturbance and complaints of physical symptoms however increased with age. Different components of psychological symptoms may vary independently with age, which may, together with methodological differences, explain these inconclusive findings. In a factor analytic study, Benfari et al (1972) found that factors reflecting worry and apprehension and mixed anxiety/depression decreased with age while low self-esteem/withdrawal increased with age.

The following studies combine epidemiological methods with psychiatric interviews. Hagnell (1970) in a large Swedish survey using psychiatric interview data, not specifically looking at menopausal status, found that the one year incidence rate of major psychiatric disorders in women peaked at 45 years, declined to a minimum 20 years later, then rose steadily with increasing age. When milder psychiatric impairments were considered, for example neurosis,

the incidence increased dramatically in adolescence, remained constantly high between the 25-45 year age bands and decreased slightly in the late 40's and 50's.

The most thorough study to date of psychiatric morbidity during the menopause was carried out in Sweden by Hallstrom (1973). Between 1968 and 1970 more than 800 women in five age groups (38, 45, 50, 54, 60 years) were given a psychiatric interview, including an assessment of personality and sexuality as well as minor psychological and somatic symptoms. The study was presented as a general health examination so that women were not aware that mental health or menopause were key variables. The prevalence rates of all psychiatric disorders (using a 0-4 global severity rating) were calculated for a one year period and the incidence of newly diagnosed psychiatric disorder was estimated from this time period. Although this study, in common with the earlier epidemiological surveys, relies on retrospective reports and is cross-sectional in design, Hallstrom at least attempted to overcome the problem of comparing different cross-sections of age groups by a matching procedure. This involved assessing the occurrence of symptoms for the three menopausal stages within four separate age bands.

Overall, he found no significant association between the incidence or prevalence of psychiatric disorders or depression and menopausal status, when age was taken into account. There was a non-significant trend for the incidence and prevalence rates to increase with age. The overall psychiatric incidence rate varied between 16-32% and prevalence between 30-58%. One significant finding was of a tendency for perimenopausal women to be more likely to suffer from a deterioration in mental health, ie. a recent exacerbation of

symptoms. However, when all three climacteric groups were combined these women had a lower incidence of deterioration than the 38 year old control group.

In a recent interview based study in Oxford (Gath et al, 1987) the Present State Examination (Wing et al, 1974) and the General Health Questionnaire (Goldberg, 1972) were used to assess the relationship between gynaecological functioning and psychiatric disorder. Women who were recently postmenopausal were no more likely to be psychiatrically ill than other women. This finding contrasts with the increase in psychiatric symptoms reported by Ballinger (1975) also using the General Health Questionnaire. Gath et al (1987) did however find an association between reports of vasomotor symptoms and psychiatric morbidity.

In summary there is no conclusive evidence that psychiatric disorder is more prevalent during the menopausal period (Weissman & Klerman, 1981). The possible relationship between reports of psychiatric problems and vasomotor symptoms warrants further study.

(iv) Studies of sexual behaviour

Although sexual problems have been reported in clinic samples of menopausal women (Sarrel & Whitehead, 1985) there have been few well designed studies of non-clinic samples. Epidemiological surveys have rarely included items on sexuality. Sexual dysfunction has been conceptualized as a symptom of the menopause (eg. vaginal dryness) a symptom of depression (eg. loss of libido) or a correlate of the ageing process. On the whole the complex nature of sexuality has been oversimplified. Usually a decline in sexual interest, satisfaction and coital frequency is expected, however, an increase in sexual

interest at the menopause has been suggested by Masters and Johnson (1966).

Kinsey et al (1953) noted a decline with age in incidence and frequency of marital coitus, and of coitus to the point of orgasm. A decline was not evident for solitary activities of women, such as masturbation, until well after 60 years of age. Pfeiffer et al (1972) in a cross-sectional study of middle class women aged 46-71 years in North Carolina, found a gradual decline in sexual interest and coital activity across age groups for men and women. Women's level of interest was lower than that of men, at all ages. When asked if they had been aware of a decline in sexual interest, there was a marked decline reported between ages of 45-50 and 51-55 years, for both sexes.

Bungay et al (1980) similarly found a gradual decrease in sexual interest and increase in difficulties with intercourse in both men and women with age. Here however there was no particular decline in women aged between 45-55 years, in fact men experienced a greater decline in interest during this age band.

In Hallstrom's study (Hallstrom, 1973) both age and menopausal status were examined. A significant and progressive decline in sexual interest was found across menopausal phases as well as age. When menopausal phase was controlled for, the association with age became insignificant, however, the association with menopausal status still held when age was controlled. Between 53 and 72% experienced a decline in interest and only between 2-13% an increase. A similar trend was evident for coital frequency and orgasm. This decline was not attributed to husbands' age or declining sexual interest, but did correlate with low social class and psychiatric disorder. As may be

expected dyspareunia, as a result of vaginal dryness, was significantly associated with reduced sexual interest. However, only 2 to 5% reported this problem and the association between decline in sexual interest and menopausal phase persisted when dyspareunia was held constant. A methodological drawback of Hallstrom's study is that women were asked about sexuality referring to the last five year period. This time scale increases the likelihood that generalization and social stereotypes about the climacteric may have an effect on their responses. Hallstrom concludes that psychological factors may play a mediating role in the association between menopausal phase and sexual disinterest.

A decline in sexual interest was also reported in a small longitudinal study of 16 perimenopausal women who were interviewed every four months until one year postmenopausal (McCoy & Davidson, 1985). A small but significant decline in both coital frequency and in sexual interest, as well as vaginal lubrication, was found with change in menopausal status. No changes were reported for orgasmic frequency or sexual enjoyment. Unfortunately there was a high attrition rate in this study, a proportion of the initial sample began oestrogen therapy and were excluded. In a retrospective study of 22 postmenopausal women Bachmann et al (1985) found that although there was an overall reported decline in sexual interest only 20% reported a significant reduction. Fifty per cent reported no change.

A tentative conclusion is that on average there seems to be some reduction in sexual interest and or behaviour after the menopause (Davidson, 1985), however certainly not all become dysfunctional (Dennerstein, 1985). Most studies suffer from methodological weaknesses and interpretation of the data needs care. For example for

some women partner unavailability is an issue in this older age group and clearly partner's sexual interest is important (Bachmann et al, 1984) as well as other factors such as marital conflict (Bachmann et al, 1985) and social factors. Biological explanations, for example the role of oestrogen and testosterone as well as the secondary effects of vaginal dryness, will be discussed in Chapter 3.

(v) Summary & Conclusions

In summary there is little evidence that psychiatric morbidity increases in incidence or prevalence at the menopause, when age is taken into account. The only symptoms repeatedly found to be associated with menopausal phase are vasomotor symptoms, ie. hot flushes and night sweats, and vaginal dryness or atrophy. There is some evidence that sexual interest may decline in peri and postmenopausal women. It is in the area of more minor psychological and somatic symptoms that there is less agreement. Some studies report an increase in psychological and somatic symptoms during the peri and early postmenopause, others do not. The main methodological problems affecting this work are use of unstandardized measures, the use of cross-sectional designs without adequate controls for age effects and lack of consideration of the effects of knowledge and stereotypic beliefs when women are asked about the menopause.

Since 1980 three prospective longitudinal studies (in Manitoba, Massachusetts and Norway) have been set in progress and full analysis of these results may help to provide some consensus about what women experience during the menopause.

CHAPTER 3

The Nature of Psychological and Somatic Experience during the Menopause. 2. Explanatory Theories

Many different theories have been advanced to explain psychological experiences during the menopausal years. Even though an increased incidence of psychiatric disorder has not been clearly demonstrated, it could be argued that different mechanisms may produce psychological symptoms in menopausal women compared to other age groups. For the purposes of this discussion psychological symptoms refer to reports of affective and cognitive changes. Where psychiatric disorders, for example clinical depression, are referred to this will be specified. The problems involved in psychiatric case definition have recently been reviewed (Williams et al, 1980).

The various theories proposed range from physiological explanations relying on oestrogen deficiency, to psychosocial theories which propose that psychological experience is culturally determined or a consequence of life experiences. Psychological explanations have generally been derived from psychoanalytic theory and have not been well integrated into other theories. The need for interactional explanations has often been suggested but no satisfactory model as such has been advanced to examine possible pathways of interaction between the above mechanisms.

(i) Physiological explanations

Here psychological symptoms are viewed as being direct or

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indirect consequences of decline in ovarian function. From the perspective of endocrinology various mechanisms have been proposed, including decreases of oestrogens and progesterone, raised luteinizing hormone (LH) and follicle stimulating hormone (FSH) or altered hypothalamic function. In addition to a decline in hormone levels, other workers have suggested that fluctuating hormone levels during the peri and immediately postmenopause may be associated with psychological and somatic symptoms (Jaszmann et al, 1969). Finally autonomic nervous system changes associated with vasomotor symptoms, may produce symptoms such as palpitations, which could be experienced as signs of anxiety. The evidence to be reviewed in the following sections comes mainly from studies which attempt to correlate hormone levels with psychological symptoms, from trials of oestrogen therapy and from endocrinological research. Post oophorectomy patients (ovaries removed) are often used as subjects as the timing of oestrogen withdrawal can be controlled. Although hormonal, central nervous system and autonomic nervous systems interact in a complex manner, they will be treated under separate headings here, for convenience sake.

(a) Hormonal mechanisms

Despite improved endocrinological techniques in recent years studies of psychological, as opposed to physiological, effects of oestrogens have received little attention (Kopera, 1973). In most studies oestrogen levels are assessed; less is known about the effects of progesterone, FSH and LH although the actions of these hormones are inevitably interrelated. It is generally accepted from animal experiments and menstrual cycle research that oestrogen can have a CNS

activating effect and progesterone a CNS depressant effect (Vogel et al, 1971; Backstrom, 1977; Asso, 1983).

The findings from correlational studies with humans have generally failed to demonstrate an association between hormone levels and psychological variables (Asso, 1983; Parlee, 1983). When clear links between menstrual cycle phase or hormone levels and psychological processes have been demonstrated these tend to be for sensory or perceptual indices, such as visual and olfactary thresholds, that is those more closely linked to CNS activity (Sommer, 1982). For the more complex psychological processes, such as mood and sexual behaviour, environmental factors and individual differences appear to account for most cyclic variations (Abplanalp et al, 1979; Strauss and Appelt, 1983).

Few studies have been carried out assessing hormone levels in non clinic samples of menopausal women who are not taking oestrogen therapy. One exception is a recent finding by Coope (1981) that neither oestrogen nor FSH levels correlated with the scores of postmenopausal women on the Beck depression scale (Beck et al, 1961). Coope (1981) used single hormone assessments. In a more detailed study, Ballinger et al, (1987) examined hormone profiles in pre, peri and postmenopausal women separately. Four weekly hormonal assessments included oestradiol, progesterone, FSH and LH and testosterone measures. Eighty five women took part in the study and completed the General Health Questionnaire (GHQ) at the initial assessment; a smaller subsample were interviewed using a standardized psychiatric interview. No significant associations between GHQ scores or ratings of depression and hormone levels were apparent apart from the finding that postmenopausal high GHQ scores were associated with high

oestradiol levels. The latter finding is difficult to explain but may be taken as evidence against an oestrogen deficiency explanation of psychological symptoms.

Sexual interest and behaviour in women also appears to be relatively independent of oestrogen levels (Bancroft, 1983). In a study of postmenopausal women Hallstrom (1973) found no relationship between reduced sexual interest and total oestrogen output (24 hour sample). It has been suggested that testosterone may increase and progesterone decrease female sexual behaviour, but again there is no conclusive evidence (Bancroft, 1983). Studd et al (1977) found no correlation between testosterone and the presenting symptom of loss of libido in postmenopausal women attending his clinic. More recently Bachmann et al (1985) found no correlation between loss of sexual desire and oestradiol, FSH, LH or androstenedione in a small non clinic sample. Similar results were reported by Ballinger et al (1987) who included questions about sexual interest in their study of hormone problems in menopausal women. Hutton et al (1979) examined the relationship between oestradiol and dyspareunia in a group of sexually active postmenopausal women. The mean oestradiol concentrations were lower in those women with superficial dyspareunia and flushes compared to those who only complained of flushing. Therefore, the clinical symptom of dyspareunia, being related to longer term changes of the urogenital tract seems to be the only sexual symptom to be clearly associated with oestrogen levels.

A second area of research used a design pioneered by Utian (1975). He assessed 50 women pre and post oophorectomy (and hysterectomy) on 14 symptoms. They were given oestrogen therapy for a year and reassessed on six occasions; a placebo trial was interposed

at the fifth assessment. Groups of normal premenopausal women and post hysterectomy (with ovaries) cases were included as controls. Hot flushes and atrophic vaginitis were correlated with vaginal parabasal cell index ((VPCI) an index of oestrogen production). These symptoms increased following oophorectomy, decreased following oestrogen therapy and increased again with placebo. Other symptoms, including angina, depression, irritability, palpitations, headache and insomnia, did not correlate with VPCI suggesting that any treatment effect was placebo. Libido decreased following surgery but was not associated with loss of ovarian function. Two symptoms - irritability and headache - whilst showing little relationship to oophorectomy did improve with oestrogen treatment above the placebo response. A similar trend was found for general mood change. Utian explains this improvement as being due to the 'mental tonic effect' of oestrogens. He coined this term in an earlier study (Utian, 1972) believing it to be a direct action of oestrogen on CNS mechanisms. Methodologically this research has a major weakness in that the author carried out all assessments which depended upon his ratings with knowledge of patient groups.

In a similar study, but this time with a double-blind crossover design, Dennerstein et al (1979) compared different oestrogen regimes with placebo. Scores on the Hamilton Depression Rating Scale (Hamilton, 1960) were significantly reduced by drugs - with oestrogen being better than progesterone and placebo, in that order. Correlations of the Hamilton Scale with ratings of mood states suggested that anxiety symptoms changed most. On patient rated visual-analogue scales no differences were found. When improvement in concurrent flushes was used as a covariate mood change decreased,

suggesting a degree of secondary reaction to relief from vasomotor symptoms. The authors attributed the remaining mood elevation to the 'psychotropic effects of oestrogen' ie. the 'mental tonic' effect. Sexual behaviour was also examined (Dennerstein et al, 1980). Oestrogen, but not progesterone, therapy had a significant effect on sexual desire, enjoyment and orgasmic frequency but not on coital frequency. Improvement in sexual desire correlated with improvements in feelings of well-being. Relief from hot flushes was not found to account for these changes. Whether improvements in sexual desire are secondary to mood changes or a consequence of central oestrogen effects is unclear.

The designs used in these studies allow for causal relationships to be understood more clearly, however, the extent to which reactions to oophorectomy mirror the more gradual changes during the natural menopause is questionable (Kaufert, 1984).

The results of treatment trials of oestrogen therapy are often quoted in support of a physiological basis of psychological symptoms in menopausal women. Methodologically these studies suffer from the use of assessment scales with unknown psychometric properties and the inclusion of clinic women with differing menopausal status and presenting complaints. Although these problems make comparison between studies difficult, in recent years the number of double-blind cross-over studies has increased leading to a clearer, although far from conclusive, pattern of results.

In general a strong placebo effect of psychological symptoms to any kind of mediation was found (Campbell & Whitehead, 1977; Coope, 1981). This effect varied, probably influenced by the belief of the patient and doctor in oestrogens' efficacy. The reduction of hot

flushes and vaginal dryness was generally confirmed (Campbell & Whitehead, 1977; Coope 1981; Durst & Maoz, 1979). In fact with such improvements in hot flushes it is difficult to see how both patients and doctors remained blind to the treatments in this type of study. When groups were compared on standardized psychological tests no difference was found between oestrogen therapy and placebo on the Beck Depression Scale (Coope, 1981) or the General Health Questionnaire (Campbell & Whitehead, 1977). Conflicting results were found using the MMPI, Strickler et al (1977) finding no difference between oestrogen therapy and placebo, while Durst & Maoz (1979) found reductions in scales reflecting depression. Some group differences were demonstrated when unstandardized rating scales were used to assess minor psychological and somatic symptoms. Campbell & Whitehead (1977), Durst & Maoz (1979) and Gerdes et al (1982) all concluded that minor psychological symptoms, particularly feelings of well-being, were improved by oestrogen therapy. In contrast both Coope et al (1981) and Strickler et al (1977) found no difference between oestrogen and placebo on such measures.

Finally the effects of oestrogen therapy on cognitive assessments and sleep studies will be considered as more objective measures are available. Furuhjelm & Fedor-Freybergh (1976) reported significant improvement following oestrogen therapy on cognitive tasks, as well as significant improvement in depression, sexual enjoyment and other psychological symptoms. These authors however were not blind to treatment conditions. Assessing concentration, memory and reaction time in oophorectomized women, Rauramo et al (1975) found no significant differences on these tests pre and post oestrogen treatment, although women reported significant improvement

in subjective ratings. Improvements in sleep disturbance, sleep latency and increased REM sleep were found in two double-blind studies (Schiff et al, 1979, Thompson & Oswald, 1977). In Thompson and Oswald's study no concurrent reductions in hot flushes could explain this effect, however, Schiff et al did demonstrate a parallel reduction in hot flushes. Both authors suggest a direct oestrogen effect on sleep disturbance.

In conclusion there is no strong evidence to support the view that psychological or sexual symptoms, which may occur during the climacteric and postmenopause, can be explained purely by changes in hormone levels. There is weak evidence from oestrogen treatment trials of improvements in global ratings of psychological state and some evidence for improvement in sleep following oestrogen therapy. These have been explained by either secondary relief from vasomotor symptoms or a direct effect of oestrogens - the 'mental tonic effect'. However, demonstration of this effect does not mean that reduced levels of oestrogen actually cause depression in menopausal women. So far results of formal cognitive assessments are inconclusive.

(b) Central Nervous System Mechanisms

There is obviously overlap between this and the preceding section in that explanations of a direct oestrogen effect or the mental tonic effect assume central nervous system changes.

Central catecholamine insufficiency has been suggested as an important mechanism in endogenous depression (Schildkraut, 1965). This hypothesis is based on the anti-depressant effect of monoamine oxidase (MAO) inhibitors. Oestrogens may have some MAO inhibitory activity leading to increased noradrenalin synthesis and increased CNS

activation (Coulam, 1981). It is therefore suggested that depression in postmenopausal women may arise as a result of hypooestrogenisation and catecholamine depletion. Altman et al (1975) found that mean plasma LH concentrations in postmenopausal women suffering from unipolar depressive illness were significantly lower than in non-depressed postmenopausal women and suggested this change might be mediated by adrenalin. Klaiber et al (1972) found that plasma MAO was actually higher in normally menstruating women when they were depressed. Oestrogens were found to inhibit this effect. In a later double-blind, controlled, study of chronically depressed in-patients Klaiber et al (1979) found that very high doses of oestrogen therapy were significantly more effective as a treatment than a placebo condition. Pre-treatment MAO levels were raised and these were reduced in the oestrogen treated group.

A second postulated mechanism linking neurotransmitters and oestrogen effects in postmenopausal depression is tryptophan deficiency. Oestrogens are known to affect tryptophan release and it is hypothesized that oestrogen deficiency is likely to be associated with low concentrations of free plasma tryptophan and hence depression (Aylward, 1976). Aylward & Maddock (1973) found a significant correlation between reduced free tryptophan levels, low plasma oestrogen levels and the severity of post-oophorectomy depressive illness as measured by the Hamilton rating scale (Hamilton, 1960). When oestrogen therapy was given to some of these patients in a double-blind cross-over study there was a direct correlation of free plasma tryptophan, plasma oestrone and percentage of improvement on the Hamilton Depression Scale in patients treated with oestrogens (Aylward, 1976). In a further study of perimenopausal women the

authors found a significant inverse correlation between tryptophan values and Hamilton rating scale scores.

The findings of direct relationships between depression and oestrogen levels are not generally supported by other studies. It does seem likely that oestrogen has a CNS activating effect, particularly when taken in high doses, which may be synonymous with the 'mental tonic effect'. However, one cannot conclude that oestrogen depletion causes depression. There may be parallel changes at both CNS and psychological levels. Equally it is possible that psychological distress or the experience of life stresses may actually lead to catecholamine and oestrogen changes (Sommer, 1982; Asso, 1983).

Ballinger et al (1979) applied this hypothesis to the aetiology of postmenopausal symptom reports. While non stressed non symptomatic postmenopausal women could be assumed to have adequate oestrogen levels, in symptomatic women environmental stress is thought to contribute to a drop in oestrogen levels. In a comparison of 10 clinically depressed and 10 non depressed postmenopausal women, oestrogen levels were shown to be lower in the depressed group and to gradually increase as the depression lifted. This small study does not adequately test the hypothesis since depressed patients are not conceptually similar to women exposed to environmental stresses. However the implications for treatment being to treat the symptoms of stress and thereby indirectly relieve vasomotor symptoms, rather than focus directly on oestrogen deficiency, are controversial and warrant further research.

(c) Autonomic nervous system mechanisms

Autonomic changes have not received much attention in explanations of psychological symptoms in menopausal women. This is surprising in view of the association between hot flushes and sympathetic nervous system changes, such as heart rate and skin resistance (Sturdee et al, 1978). It is possible that certain symptoms, for example palpitations, may be interpreted as anxiety and, therefore, reported as psychological symptoms. In two studies (Dennerstein et al, 1979 and Campbell & Whitehead, 1977) reductions in anxiety symptoms were reported following oestrogen therapy. An alternative explanation to secondary relief from hot flushes, is that anxiety symptoms are relieved directly as autonomic concomitants of hot flushes are reduced. So far no one has assessed psychological symptoms in sufficient detail to test out these hypotheses.

(d) Summary and conclusions

As yet there is no conclusive evidence that psychological symptoms occuring during the menopause are a direct consequence of hormonal mechanisms. Correlations between psychological and hormone levels are generally insignificant - other factors must be assumed to account for variations in mood. The only symptoms clearly attributable to the hormone changes are vasomotor symptoms and changes in the urogenital tract. Improvements in general well being and some minor psychological symptoms have been reported following oestrogen treatment. These benefits seem best explained by secondary relief from vasomotor symptoms. The possibility remains that there may be some direct therapeutic effect on brain functioning (Campbell & Whitehead, 1977). Prospective studies are needed to examine whether psychological symptoms occur in association with hot flushes, or

menopausal phase or are best explained by other factors. Finally the hypothesis that stress can lead to lowered oestrogen levels, and hence vasomotor symptoms, deserves further consideration.

(ii) Psychosocial explanations

Here cultural, social and psychological factors are considered in relation to symptom complaint and reported experiences during the climacteric and postmenopause. It is somewhat artificial to separate psychological, social and cultural influences since an individual's reaction to the menopause will be influenced by individual developmental variables as well as specific social role changes, in addition to the more general social stereotypes. However, in the following discussion the evidence for each explanation will be presented under separate headings with cross referencing where necessary.

(a) Cultural explanations

Menopause as a topic of interest in anthropology is a recent phenomenon. It is generally held that response to menopause is conditioned by the cultural context which shapes the pattern of a women's role. Culture thus attributes meaning and significance to the menopause, (Beyenne, 1986). Early ethnographic reports are anecdotal and scanty in information but illustrate the types of role change that can occur (see Flint, 1975; Kaufert, 1982b; Beyenne, 1986 for examples). The main theme is the lifting of the menstrual taboo, resulting in enjoyment of higher status, comparable to males. Consequently attitudes to the menopause would be expected to be more positive with fewer symptomatic complaints.

There are few adequate studies of the menopause in non-Western, non-industrial cultures. In the past ten years awareness of methodological difficulties and problems in interpretation of such data has increased. As well as the obvious issues of language translation of questionnaires, attention has been drawn to the wider context of illness behaviour and symptom expression in another culture. For example, Goodman et al (1977) in a Haiwaiian study found that ethnic group differences were to some extent dependent upon the clarity and objectivity of the variables under study. Wilbush (1984) has emphasized the difference between levels of questioning, for example between symptoms (spontaneous complaints) and subjective sensations or semeions. Similarly the extent to which symptoms reflect differences in sensations experienced or differences in linguistic labels is a problem in these studies (Kaufert, 1982b).

On a conceptual level the assumption that new roles for women, such as participation in male activities, are a universal measure of status gain has rightly been questioned (Beyenne, 1986). Women's role and status changes in non-Western societies, as in Western societies, do not necessarily correlate or depend on her menopausal age. Moreover the assumption that role stability and status gain have an effect on menopausal experiences has been challenged by Davis (1982) based on her study of women in a Newfoundland fishing village. Beyenne (1986) has recently drawn attention to the impact of environment, diet, fertility patterns and genetic differences which may contribute to the variation in menopausal experience between cultures.

To summarize the findings of the existing studies, the occurrence of somatic symptoms has been reported to be low or absent

in Mayan Indians (Beyenne, 1986), North Africans in Israel (Walfish et al, 1984), Rajput of India (Flint, 1974) and in Japanese women (Lock, 1986). Wright (1983) found that although prevalence of hot flushes among Navaho and Anglo Indians were similar the frequency of hot flushes differed considerably. These findings are in contrast to the higher symptom reporting patterns in North American and European studies. It is generally concluded that there are some genuine differences in experience, probably both biological and socio cultural, but also that some variation is due to methodological problems.

Given that in Western cultures, the menopause is not associated with symbolic rituals and that the menopause is rarely a necessary cause of social transitions, it is difficult to demonstrate a "cultural explanation" of experience of the menopause. One way would be to assess attitudes to and stereotypes about the menopause and examine the extent to which these account for variation in symptom reporting within or between cultures. Attitudes will be discussed in the final section of this chapter.

(b) Social explanations

Here psychosocial stresses, conceptualized as life events or role transitions, are held to account for psychological distress during the menopausal years. That is, that independently occurring concurrent life changes will account for psychological distress. The climacterium has been described as a period of psychosocial transition or adjustment (Parkes, 1971; Dominian, 1977) involving the ending of the parental role, launching children into the adult world, reassessment of marriage, possible widowhood and loss of parents. It

has been pointed out (Notman, 1981; Neugarten, 1979) that such expected life stages, for example as described by Erickson (1969), may not apply in a clear sequential manner for women, particularly with increasing variation in age of childbearing, marriage, career, etc. A woman's position in the chronological, biological and social life cycle may be more variable than has been assumed. Nevertheless, given that on average a woman will be menopausal at 50 years, when the average age of her mother will be 78 years (which is the average life expectancy) and the average age of her daughter will be 23 years (the average age of marriage) life changes, particularly losses may be likely to be experienced during the menopausal years (Crawford & Hooper, 1973).

The association between stressful life events and the onset of psychological and physical symptoms has received much attention in recent years (Brown & Harris, 1978; Campbell et al, 1983; Bebbington et al, 1981, 1984). Brown & Harris (1978) provided a sociological model of depression. In this model the presence or absence of vulnerability factors influenced a woman's reaction to life events, particularly loss events. Vulnerability increased with loss of her own mother in childhood, no confiding relationship, three or more young children at home and unemployment. Working class women were more vulnerable to depression. Although this model has been criticized methodologically (Tennant & Bebbington, 1978; Tennant, 1985) and the action of vulnerability factors not confirmed in some studies (Bebbington et al, 1981; Warr & Parry (1982), it is generally agreed that stressful life events have a potent effect on psychological disturbance. In a recent review Tennant (1985) suggests that social risk factors may act independently of each other and these

factors may vary considerably from one population to another.

Few studies have been carried out to assess the effect of life events in older women. There is some evidence that life events, as assessed by questionnaire, may be less common in older age groups and that more chronic or intrapsychic stress may be more relevant (Chiriboga & Dean, 1978; Murphy & Brown, 1980; Bebbington et al, 1981). Similarly the accepted association between social factors and mental health has not been found in older populations (Lowenthal et al, 1967). The studies relevant to this age group, with the exception of Greene & Cooke (1980) and Schneider and Brotherton (1979) have focussed mainly on adaptions to <u>specific</u> events, such as children leaving home, widowhood, bereavements, and parameters such as marital status, social class and employment status.

Greene & Cooke (1980) carried out a detailed investigation of the extent to which life events account for the psychological and somatic symptoms during the climacteric in a community sample of 121 women. As reported previously these authors found a non-significant tendency for psychological and somatic symptoms to increase in the 35-54 year age band. The only significant finding was that younger women (35-45 years) experienced more somatic symptoms than older women (55-64 years). Using a life events questionnaire (Paykel et al, 1976) they found that total life stress scores were <u>not</u> significantly elevated during the climacteric or menopause and that life events accounted for a greater proportion (approximately 30%) of the variation in somatic and psychological symptoms than did menopausal status.

In a subsequent paper (Cooke & Greene, 1981) types of life events were examined. Life events involving <u>exits</u> specifically (that

is people leaving the woman's social field) were found to increase during the early to mid-climacteric and gradually decline thereafter and were associated with symptom reports. Exits by death increased particularly in the early to mid climacterium. General stresses occurred with similar frequency across the climacteric. Using a stepwise multiple regression analysis, general stresses were found to account for psychological symptoms, however, the presence of both general stresses plus an exit (mainly bereavement) was necessary to produce somatic symptoms. These authors invoke a vulnerability explanation - that early climacteric women are more vulnerable to psychological reactions to miscellaneous stresses. This is surprising since there was no significant increase in psychological symptoms nor in miscellaneous stresses. The increase in somatic symptoms appears to be understandable given the increase in bereavements in the age band. It is worth noting that these women were aged late 30's and early 40's; it is debatable whether it is helpful to consider them to be climacteric.

This study highlights the significant effect of bereavement described by others (Parkes, 1971; Brown & Harris, 1978; Paykel, 1978) and the differential effect of varying types of stress. Exits and deaths as well as being stressful life events may also involve loss of social supports, thereby increasing the negative impact of the loss. The majority of exits in this study (Cooke & Greene, 1981) were loss of parents, however, it is highly probable that widowhood, divorce or marital separation will have similar impact if larger samples are used, since these three stresses have been considered the most difficult and serious to cope with (Dohrenwend & Dohrenwend, 1974; Prudo et al, 1981; Holmes & Rahe, 1967). In his study of psychiatric

illness in menopausal women Hallstrom (1973) found increased disorder if marriage was disrupted by separation, divorce or by death of husband.

Schneider & Brotherton (1979) examined the effects of life stresses using unstructured interviews, and found that depressed menopausal women experienced more specific life events, such as problems in early development, role impairment, marital dissatisfaction, economic difficulties, than non-depressed menopausal women. Neither empty nest, loss of reproductive function nor physical illness differentiated groups. This study may suffer from retrospective contamination of depressed mood and the classification of life stresses seems arbitrary. Bereavement was not examined separately.

The specific life stress that has received most attention in relation to the mid-life and the menopause is the 'empty nest syndrome'. The evidence for this will be examined next and will be followed by a discussion of the role of possible protective or vulnerability factors, including social class, marital status, employment.

The 'empty nest syndrome' conjures up the image of a woman who identified strongly with mothering or feminine role and had little meaning in life following the loss of her children. On the whole it is clinical studies, such as Rogers (1973), which provide evidence supporting this crisis view of the empty nest. Some additional evidence for this view was provided by Crawford and Hooper (1973) who studied 43 climacteric and post-menopausal women whose children were about to marry and 63 women who were about to become grandparents. More "menopausal symptoms" were present when a daughter, compared to a

son, married. Neither birth order of the child nor number of children, nor the experience of grandparenthood were associated with symptoms. Van Keep & Kellerhalls (1974) similarly found that fewer menopausal symptoms were reported by women whose children were still at home.

However, in longitudinal studies in non-clinic populations the empty nest transition has commonly been perceived as a relief rather than a crisis by many women (Lowenthal & Chiriboga, 1972; Krystal & Chiriboga, 1979). Krystal & Chiriboga examined the gradual process of nest emptying in a small cross-sequential follow-up study and concluded that a demand for readjustment and change was created but that most women were able to cope with this challenge and reported increases in activity and morale across the transition. Similarly Glenn (1975) using data from six national surveys found that among women of the same age, those whose children had left home were generally more satisfied. This finding concurs with survey findings of an association between lower life satisfaction and higher rates of depression in women during the age bands when they are likely to have children at home, particularly young children (Greene & Cooke, 1980; Brown & Harris, 1978).

Other social factors, such as social class, marital status and employment status have been considered in relation to symptom complaints. Working class women, compared to middle class women have been found to report more psychological and somatic symptoms (Brown & Harris, 1978; Surtees et al, 1983). There is some evidence that middle-class women experience fewer symptoms during the menopause than working-class women (Jaszmann, 1973; Van Keep & Kellerhalls, 1975; Neugarten & Kraines, 1965). However an association with social class

was not found in other studies (Hallstrom, 1973; McKinlay & Jefferys, 1974). Social class is not, however, a single variable and may involve financial, housing constraints, different attitudes to women and the menopause as well as the need to work rather than working by choice. Populations sampled and different measures of symptoms may explain these conflicting findings. In Scandinavian studies authors claim fewer social class differences.

Being married has been viewed as a protective factor or social support (Gove et al, 1983; Pearlin & Johnson, 1977), or as involving an unrewarding role for women (Weissman & Klerman, 1977). In a recent review of the literature Gove et al (1983) concluded that marriage is associated with mental health but more importantly it is the quality of the marriage and not marriage per se that links marriage to well-being. This view is supported by the work of Brown & Harris (1978) who stress the importance of an intimate confiding relationship and that of Henderson (1984) who draws attention to the importance of social supports in recovery from depression.

It is generally accepted that marriage benefits men more than women and that the sex difference in incidence of depression is greater for married people (Cleary & Mechanic, 1983; Gove, 1981; Weissman & Klerman, 1977). Cleary & Mechanic (1983) in a large study of psychological distress amongst married people found that housewives were most likely to be depressed, followed by married working women with children. Married working women without children were less likely to be depressed. Discussing these findings in the terms of role theory, the authors suggest that the housewife role involves little opportunity for social support, fewer rewards for work and greater dependence on satisfaction from marriage. For married women

without children employment seemed to have a protective effect, however, if working women also had children this protective effect was lost. It has also been suggested that the dual role causes distress (Lewis & Cooper, 1983; Haw, 1982). The authors conclude that the housewife role and the combination of potentially conflicting roles of mother and worker were associated with depression and that these associations were stronger for women of lower social class.

This complex relationship between social variables has been further investigated by Warr & Parry (1982) and by Krause (1984). Warr & Parry (1982) found that work was associated with well-being in some instances, but not for women generally. Work was more protective for single, than married, women. In this study, however, work appeared to act as a stress-buffer in working class but not for middle class women, suggesting that work provides working class women with an outlet or opportunity for support, away from domestic stress. These findings are complemented by those of Krause (1984) who demonstrated that work can reduce the negative effects of some forms of marital stress but that work does not reduce stress arising from the child care role.

Unfortunately this sophisticated examination of social factors has rarely been used in studies of older or menopausal women with two recent exceptions (Cooke, 1984; Jennings et al, 1984). In some earlier studies no association between symptom report and marital status or employment were found (Hallstrom, 1973; McKinlay & Jefferys, 1974). In others significant associations were reported between symptoms and employment (Polit & Larocco, 1980; Prill, 1964; Maoz et al, 1978). The effect of employment may vary in different ethnic groups (Maoz et al, 1977) and in working and middle class women (Van

Keep & Kellerhalls, 1974). It does appear however that social support, particularly the availability of a confiding relationship is an important variable in explaining the presence of psychological symptoms in women of menopausal age (Holte & Mikkelsen, 1982; Cooke, 1984).

Cooke (1984) examined the interactions of life events and other social variables (the sample used is described earlier (Greene & Cooke, 1980)). Both life events and number of confidants available had independent effects on psychological symptoms, but together these variables had a synergistic effect, ie. the level of psychological symptoms increases disproportionately. Employment status and loss of mother before the age of 11 years acted as vulnerability factors - they did not influence the level of psychological symptoms except in the face of life stress. Similar relationships were apparent for somatic symptoms. Longitudinal studies are needed to confirm these findings since number of available confidants could be influenced by current emotional state.

Jennings et al (1984), drawing from the Massachusetts cross-sectional survey (McKinlay & McKinlay, 1986) examined the relationship between health measures and employment status. They found a consistent association between ratings of health measures (numbers of psychological and somatic symptoms, self assessment of health) and employment status. While unemployed women were least healthy, full time homemakers were less healthy than employed women. The authors suggest that some women may not work because of poor health and suggest that this may explain a degree of the association. They also demonstrated an interaction between employment and education on the effects of self assessed health. The relationship between

employment and health being stronger in women with fewer years of education.

In conclusion, it is generally accepted that psychosocial factors are associated with psychological and somatic symptom reports and influence the onset and process of psychiatric disorders. Life events, particularly exits from the social network, appear to be particularly potent stressors. However, there is no clear evidence that the mid-life age range is more stressful than other lifestages, for example, young motherhood. Specific stressors, for example 'empty nest syndrome' or 'caring for elderly parents' cannot be assumed to be temporally associated with the biological menopause, and may only be experienced as stressful in the context of restricted roles, or lack of social supports. From the few studies relating social factors to the prevalence of menopausal symptoms it might be predicted that experiencing exits of relevant people from the social network, low levels of social support, perhaps unemployment, and being working class may be associated with greater symptom experience. The way in which social transitions are experienced and the way in which symptoms are attributed to the menopause will depend on individual variables, such as personality characteristics, attitudes and coping strategies which are the subject of the next section.

(c) <u>Psychological Explanations</u>

Psychological theories should aim to provide explanations of individual differences in reaction to the menopause. These reactions - emotional, cognitive or behavioural - may occur in response to the physiological aspects of the menopause or in response to the perceived meaning of the menopause, which may be influenced by both individual

and cultural factors. There is a dearth of systematic psychological research in this area, most explanations being derived from psychoanalytic concepts which were based on clinic samples and have not been adequately evaluated. Whether conceptualized as conflicts or attitudes, personality characteristics, defences or coping strategies, psychological explanations tend to assume that events earlier in life and habitual modes of responding influence a woman's experience of the menopause. Cognitive and behavioural theories have not been formally applied to reactions to the menopause. A secondary consideration is whether the experience of the physiological menopause itself produces changes in psychological variables or personality characteristics. This point has been partly dealt with in Chapter 2 and becomes rather circular when cognitive factors are taken into account. However, given that the stages of the menopause occur across midlife age bands it may be helpful to first put the discussion into context by briefly considering the relationship between psychological variables and the ageing process.

Using cross-sectional designs, variables such as dependency, rigidity, introversion and self image have been examined. Results have been inconsistent on the whole apart from a finding of increased introversion in the second half of life (for reviews see Chown, 1983; Neugarten, 1977). Methodological problems such as the comparability of psychological constructs when applied to different ages, the need to control for environmental changes and the important influence of cohort effects bringing inevitable differences between groups in education and socialization, may explain these inconsistencies. The few better controlled studies, being cross-sequential or longitudinal, offer more support for consistency of coping strategies and self

concept with age, suggesting that cohort differences are probably greater than age differences (Lowenthal et al, 1975; Noberini & Neugarten, 1975; Valliant, 1971; Folkman & Lazarus, 1980; McCrae, 1982). Examining the relationship of coping strategies and age both Folkman and Lazarus (1980) and McCrae (1982) concluded that variation in coping strategy used was more dependent upon the type of stress commonly encountered at different life stages than age per se. Health problems became a greater source of concern with age. In two studies (Noberini & Neugarten, 1975 and Folkman & Lazarus, 1980) the middle age range was considered specifically and again similar findings of lack of age changes in personality measures, such as self concept, life satisfaction and coping strategies, emerged.

Returning to psychological theories of menopausal symptoms most explanations rely to some extent on the concept of loss, for example, loss of reproductive capacity, loss of youthful femininity, loss of general energy, health and ageing, loss of the social role of motherhood. This view of the menopause has been derived largely from psychodynamic writing. Deutsch (1945) proposed that the experience of loss of reproductive capacity re-evoked oedipal feelings and earlier separations and that in response to this women feel disappointment and struggle to preserve their femininity. Benedek (1950) offers a similar explanation seeing the menopause as a time of de-sexualization. She refers to hormonal factors as exacerbating the effects of loss by reducing the integrative strength of the personality. Similar symptoms would be expected during pre-menstrual phases. According to Benedek women who are less well adjusted to their feminine identities, or women without children, would suffer more psychological problems. Although still suggesting a loss of

sexuality in the broadest sense, Fessler (1950) emphasized the concept of penis envy. The ability to give birth is felt to compensate for the early envy and sense of loss, however, at the menopause this compensation is lost and women are thought to regress to earlier infantile feelings of envy and depression.

These theories can be criticized because of the failure to clearly operationalize concepts and the difficulty in formulating them into testable hypotheses. There are conceptual problems in the use of the term femininity. The idea of female or feminine role or identity - a psychological concept - is not separated from reproductive capacity - a biological concept. Female identity is not one dimensional but includes various roles such as wife, worker, mother, daughter which may or may not conflict. Such concepts have more recently been considered in their social context and the traditional female psychology criticized by feminist writers (see Dinnerstein, 1978; Mitchell, 1977).

The implications from psychodynamic theory about the expected relationship between symptoms and feminine identity are contradictory. More psychological symptoms are thought to occur if women are less feminine, ie. cannot maintain feminine identity in face of loss (Benedek, 1950), or if women have a strong feminine identity, ie. rely on this solely for self esteem (Bart & Grossman, 1978). The latter view would be consistent with role theory in that over reliance on one self-limiting source of self esteem, such as youth, beauty, reproductive capacity, could increase vulnerability to depression and psychological symptoms. These theories have in common the notion of early conflict, or disruption of development, re-emerging at the menopause. Therefore we might expect that women with a general

pre-disposition, such as neuroticism, personality problems or psychiatric disorder, might experience more symptoms of the menopause, as well as there possibly being a more specific factor involving the concept of female identity. Unfortunately, symptoms - whether psychological, somatic or vasomotor - have rarely been considered separately. The following evidence refers, where possible, to findings concerning psychological reactions. The effect of psychological factors on experience of vasomotor symptoms will be considered later.

Empirical data on the psychological or personality characteristics of menopausal women are sparse. There is however an accumulating consensual finding of increased psychological symptoms, such as depression, in women with a past history of psychiatric disorder (Stern & Prados, 1946; Hallstrom, 1973; Ballinger, 1977) and in those with neurotic personality traits (Hallstrom, 1973; Collins et al, 1984) and low self esteem (Kaufert & Syrotuik, 1981). In Hallstrom's study (1973) previous psychiatric disorder between the ages of 20 and 50 years was associated with psychiatric disorder at the menopause but earlier experiences, including broken home and poor parental relationship, were not. It seems that for this age group earlier factors may be less influential.

There is some evidence from studies of menstrual problems (Spencer-Gardner et al, 1983) and menopausal women (Collins et al, 1983) that women who perceive events to be outside their own control (external locus of control, Rotter, 1966), experience more symptoms . Given the range of possible attributions of symptoms, for example to hormones, marital problems, physical health, ageing, social factors, this internal/external dimension is probably rather a simplistic

measure. These findings are generally consistent with the evidence of predictive factors of psychological problems and psychiatric disorder and are not specific to the menopause.

The more specific hypotheses refer to the idea that identification with the female role is associated with psychological reactions to the menopause. As discussed earlier contradictory hypotheses have been proposed. Again there is a dearth of empirical research and the results are inconsistent. So far there is little evidence that women who do not have a strong feminine identification develop more symptoms. In fact single and childless women who may be considered traditionally as 'less feminine' have been found to be less symptomatic than married women with children (Jaszmann et al, 1969; Hallstrom, 1973). In addition Bart & Grossman (1978) provide some evidence that increased motherliness scores on psychological scales and greater investment in their children was associated with depression for menopausal women.

There is some evidence that women with high femininity scores on the BEM Sex Role Inventory (Bem, 1974) experience more menstrual symptoms (Gough, 1975; Chernovetz et al, 1979). This finding was not supported in a recent study of women suffering from premenstrual tension (Spencer-Gardner et al, 1983). Collins et al (1983) used the BEM inventory with additional rating scales in a study of 17 postmenopausal women pre and post oestrogen treatment. Increased femininity scores were associated with symptoms, particularly vasomotor symptoms. It is possible that experience of symptoms may increase the sense to which women see themselves as having sex-typed characteristics. The BEM inventory does not assess women's actual social roles but rather the extent to which one's self assessment

matches masculine or feminine stereotyped characteristics. Spencer-Gardner et al (1983) also found that 'masculinity' scores using this scale were generally associated with higher self-esteem and fewer symptoms, suggesting that female stereotypes may reflect similar qualities to descriptions of people with low self esteem.

Attitudes and beliefs about the menopause have been considered in terms of the general stereotypes about menopausal women held in different societies (Flint, 1975) and in terms of individual differences in attitude held within a particular culture (Neugarten et al, 1963). There is some support from cross-cultural studies of relationships between symptom complaints and meaning of the menopause in a particular culture (Flint, 1975; Maoz et al, 1977; Moore, 1981). In cultures where the menopause is followed by a positive social change fewer symptoms have been reported. A negative stereotype of menopausal women is frequently referred to in Western societies where the menopause is associated with ageing, decline of function and reduced youth and beauty, that is loss of socially desirable characteristics (Kaufert, 1982b).

There is some indication however that women individually do not hold such negative attitudes as might be expected (Neugarten et al, 1963). These authors found that postmenopausal women had more positive attitudes than premenopausal women suggesting that experience of the menopause may modify negative attitudes. Attitudes to the menopause have been regarded globally as positive or negative, however Van Keep (1970) found that European women tended to regard the menopause as psychologically and physically upsetting but also looked forward to being free from menstruation and pregnancy. British women had a slightly more optimistic attitude than their European peers.

In the Massachusetts cross-sectional survey (McKinlay & McKinlay, 1986) several questions regarding attitudes were included. Women were asked how they felt about the time when menstrual periods stopped altogether. Pre-coded options including relief, regret and no particular feeling at all were offered. Between 70-80% of pre, peri and postmenopausal women reported relief. Lock (1986) compares the responses to the same questions used in her Japanese study with those in Massachusetts. Approximately 70% of both populations believed that depression and irritability increase, while 78% of the American and 56% of the Japanese sample believed that the menopause does not significantly change women. Lieblum & Swartzman (1986) assessed pre, peri and postmenopausal women's attitudes to the menopause focusing on issues of disease versus normal development, use of oestrogen therapy and expected changes. They found considerable diversity of beliefs, women being clearly divided on the issue of oestrogen therapy. Although they generally believed that femininity and sexuality were unaltered, the majority had a medical view of the menopause. These results draw attention to the range of sometimes apparently conflicting beliefs and reactions to the menopause and may explain why no significant relationships have been demonstrated between attitude and symptom reports when global scales have been used (Hallstrom, 1973). Further examination of individual differences in attitudes and the relationships between attitudes and perception of symptoms would be helpful. Longitudinal studies are needed to assess changes in stereotypes, beliefs, attitudes and symptom reports during the climacteric and postmenopause.

Experience of menstruation has been linked to symptom complaint during the climacteric and postmenopause. Again there is

insufficient and inconsistent evidence available to date. Maoz et al (1970) found that distaste for menstruation and problems with pregnancy and delivery were associated with a positive attitude to the menopause. In contrast in a recent cross-sectional study (Holte & Mikkelsen, 1982) reports of past menstrual problems were one of the main predictors of psychological and somatic symptoms in climacteric women. The authors interpret this finding in terms of learnt menstrual coping behaviours, however a hormonal explanation is also possible. Some sort of hormonal vulnerability has been suggested but has not yet been systematically studied (Dennerstein et al, 1979). Hallstrom (1973) found a significant relationship between psychiatric problems at the menopause and psychological stress during pregnancy or postpartum. The possible relationship between reactions to menstruation, pregnancy and the menopause warrant further study. Similarly memory of or reports of her mother's menopause may be expected to have an impact on expectation and perceptions of a woman's own experience. No one has demonstrated an effect of this variable on symptom report. Again both biological and psychological factors would need to be considered in interpreting positive findings.

Few researchers have differentiated between types of climacteric symptoms or examined psychosocial predictors of vasomotor symptoms specifically: usually global symptom scores have been used. There is anecdotal evidence that psychological factors such as anger, excitement and anxiety may exacerbate hot flushes (Reynolds, 1962). In a recent study (Voda, 1981) records of hot flushes and their precipitants were studied. Psychological factors were reported as precipitants of hot flushes but no consistent pattern emerged within or between individuals. Similarly Gannon et al (1987) correlated

ratings of hot flushes and daily stresses in 10 menopausal women. Significant associations were found between hot flush activity and stress (daily hassle rating) for 50% of the sample. However conclusions about causality cannot be made.

In Hallstrom's study (1973) the occurrence of psychiatric disorder during the past 10 years was one of the strongest predictors of vasomotor symptoms. More recently Gath et al (1987) found an association between reports of vasomotor symptoms and psychiatric morbidity. However again the direction of causality is controversial. Hallstrom (1973) suggests that psychiatric disorder may lead to increased vasomotor symptoms. A direct biochemical effect of stress on oestrogen levels has been hypothesized by Ballinger et al (1979). However, alternative explanations include a tendency to over-report all symptoms by psychiatric patients and that psychological symptoms may represent reactions to severe vasomotor changes. Given that the autonomic nervous system mediates both hot flushes and palpitations, as well as anxiety symptoms and reactions to stress, complex interactions between these symptoms might be expected. Further research making use of recently developed objective techniques for assessing vasomotor symptoms (Tataryn et al, 1981) is needed.

Holte & Mikkelsen (1982) found that as well as menopausal status, a woman's own level of income accounted for a small proportion of the additional variation in experience of vasomotor symptoms. Finally, as mentioned earlier, Collins et al (1984) found an association between vasomotor symptoms and femininity scores (Bem Sex Role Inventory (Bem, 1974)). Psychological symptoms, on the other hand, were associated with personality variables but not femininity scores. This was a small study (N=17) of a clinic population and

replication is required.

In summary, there is reasonable agreement that women may be more prone to psychological symptoms during the menopause if they have a past psychiatric history, neurotic traits and low self-esteem. These factors would however be considered predictive of psychiatric disorder or poor adaptation generally and therefore can be viewed as being independent of the menopause. The evidence regarding specific psychological variables such as femininity or female role identification, is sparse and inconclusive. Psychological symptoms seem to be more prevalent when women rely on feminine roles for self-esteem than when they do not. The effect of stereotypes and specific beliefs about the menopause, as well as past experience of menstruation and exposure to menopause of others, are important variables to be examined in future research. There is some support for an association between vasomotor symptomatology and psychiatric disorder, however the direction of causation is uncertain. Further research is needed separating types of symptoms - psychological, somatic, vasomotor - since preliminary studies suggest that psychological factors may be differentially associated with such symptoms.

(d) Summary and conclusions

Cultural, social and psychological factors have been artificially separated for the sake of convenience in this section, however their influence on attitudes, perception and interpretation of symptoms and life changes during the menopause obviously interact. On the whole in the literature socio-cultural factors have been viewed as secondary or moderating variables which may have some influence on a

primarily biological process. Particular social and psychological factors appear to be associated with reports of psychological, and in some cases, somatic symptoms including socioeconomic status, employment status, marital status, past psychiatric history, stressful life events and general personality characteristics. However these factors are not specific to the menopause. Although midlife may involve certain life transitions, these are not necessarily interpreted as stresses nor are they necessarily temporally associated with the physiological menopause. There is a lack of systematic study of factors associated with the experience of vasomotor symptoms and of the specific factors which influence the extent to which women take on board certain cultural stereotyped attitudes regarding the menopause. Further research is needed to examine the differential influence of socio-cultural and psychological factors on the experience of psychological, somatic and vasomotor symptoms.

Rather than aim for global generalities to be made about menopausal experience, greater awareness of individual differences and the range of experience is needed. In order to achieve this and to provide more possibilities for an integrated model of menopausal experience it is vital that cognitive factors, such as stereotypes, attitudes and beliefs, are examined in future research.

CHAPTER 4

Help Seeking Behaviour and the Menopause

Stereotypes about menopausal women include beliefs about frequent use of medical services and reliance on medication as well as symptomatic experience (Kaufert & Gilbert, 1986). In this chapter the extent to which menopausal women use medical services and take medication will be considered. There is little information about other forms of help-seeking behaviour such as lay consultation or seeking social support. Attempts to predict the characteristics of women who do seek medical help and factors influencing this decision will be discussed in the final section.

(i) Use of medical services

Although women are found to have more contact with their general practitioners than men this difference is greater in the 15 to 44 age band. This is the case even when demand for obstetric care is taken into account (Banks et al, 1977). For both sexes there is a peak in medical contact rate during early childhood and an increase in old age (Wadsworth & Ingham, 1981). Attempts to examine whether the menopause influences help seeking behaviour have been hampered by the use of varied measures which have prevented comparison between studies. For example, McKinlay & Jefferys (1974) reported that 20% of women sought medical help for hot flushes while Thompson et al (1973) found the 45% of their sample of menopausal women reported that they had sought medical treatment for hot flushes at some time. Van Keep

(1970) in a survey of menopause in six European countries found that on average 41% reported that they had sought medical help. British women were less likely to seek help than women of other European countries.

Numbers of consultations in varying time periods (two weeks to one year) have also been used and have the advantage that they enable comparison with national statistics. Kaufert (1980) examined the number of physician contacts in a cross-sectional survey of 200 pre, peri and postmenopausal women in Manitoba. She included peri and immediately postmenopausal women together in one perimenopausal category. Contact rates in the past two weeks as well as estimates of the past year were studied. It was the older postmenopausal women and women who had undergone hysterectomy who were more likely to have consulted a physician in both time periods. Nineteen per cent of perimenopausal women compared with 15% of pre and 33% of advanced postmenopausal women had seen a physician in the past two weeks. However perimenopausal women had an infrequent but regular pattern of physician contact, most attending between one and three times a year; only five per cent had no contact. More premenopausal women were non-attenders. When asked about consultations regarding the menopause specifically, two-thirds of peri- and postmenopausal women had discussed the menopause with a doctor. These results may not be generalised to other groups of women since all attended the same physician, whose attitude and medical practice may influence the statistics.

Preliminary data are available from the larger cross-sectional surveys of McKinlay & McKinlay (1986) sampling 8050 women in Massachussetts, and the similar survey in Manitoba of 2500 women

(Kaufert & Gilbert, 1986). McKinlay & McKinlay (1986) found no increased use of health care as assessed by the percentage of women consulting one or more professionals in the previous two weeks. Approximately 20% of each menopausal category attended at this level, in contrast to 28% of women who had experienced hysterectomy. Perimenopausal women did show a non-significant increase in informal consultation, that is with friends and relations. The authors conclude that the menopause has little impact on health behaviour but that surgical menopause is associated with higher use of services. Comparable data are not yet available from the Manitoba study. However Kaufert & Gilbert (1986) described use of medical services for menopausal complaints, ie. those perceived and interpreted as such. Fifty four per cent of pre, peri and postmenopausal women had discussed their menopausal status with a physician, while 34% reported hot flushes to a physician. One third of the women who had experienced menopause did so without medical consultation. A comparable study of British women has not been carried out.

(ii) Use of medication

It is recognised that prescribing patterns vary markedly between and within different countries. In 1970, Van Keep, in a survey of six European countries, estimated that only 36% of British women were aware of oestrogen therapy as a treatment compared with 47 to 71% in other European countries. Oestrogen sales in the U.S.A. increased between 1960 to 1975 then decreased until 1980, largely as a result of research linking this treatment with cancer. Since then there has been a gradual increase in use, now that combined oestrogen-progestogen treatments are offered and that oestrogens are

recommended for treatment of osteoporosis (Swartzmann & Leiblum, 1987). In 1981 Whitehead noted that only 3-4% of British menopausal women attended menopause clinics for treatment, presumably receiving oestrogen therapy. There are no systematic studies of total medication use across menopausal phases in British samples.

McKinlay & McKinlay (1986) investigated the use of prescribed medications, over the counter medications as well as specific use of oestrogen therapy. There were no significant differences between pre, peri and postmenopausal women in use of prescribed medications including tranquillizers and oestrogen therapy, but there was a non-significant increase in use of over the counter medication by perimenopausal women. Again the surgical menopause group were significantly greater users of both types of medication. The use of oestrogen therapy varied from two per cent among perimenopausal women to approximately six per cent in peri and postmenopausal women. Sixteen per cent of the surgical menopause group were prescribed oestrogen.

Comparable data from the Manitoba study (Kaufert & Gilbert, 1986) suggest slightly higher rates of oestrogen use. Nine per cent and 17% of peri and postmenopausal women respectively were taking oestrogen therapy at the time of the survey. These authors estimate that their results are an under-estimate of the rate of hormone use by menopausal women elsewhere in North America. However they argue that the current evidence suggests that the menopause may not have been medicalized in practice to the extent that might be believed from the medical literature.

(iii) Factors influencing help seeking behaviour

There is now considerable evidence that decisions to seek medical help involve a complex process which may be influenced by personal factors such as health beliefs, interpretation and attribution of symptoms, current mood state, disease factors such as type, seriousness, prognosis and social factors such as social support and type and availability of medical services. Space does not permit full discussion of these influences, for general reviews see Mechanic (1983), Rosenstock & Kirscht (1979).

A great deal more illness is experienced by people than is seen by physicians. Hannay (1980) coined the term symptom ice-berg to describe this effect. In a longitudinal study Mechanic (1980) found that two main variables - subjective reports of poor physical health and measures of psychological distress - explained most variation in seeking medical help. Psychological and social determinants of help seeking behaviour appear to be more influential with mild to moderate rather than severe symptoms (Mechanic & Greenley, 1974).

In one of the few studies of help seeking behaviour in menopausal women, Ballinger (1985) compared a menopause clinic sample (n = 164), of postmenopausal women, with a matched sample recruited from shopping centres. Unfortunately there was a high refusal rate (38%) for the control sample. The clinic sample reported significantly more depression (Hamilton rating scale (Hamilton, 1960)), more general symptoms and more life stress. Life stress was assessed using a modification of the Tennant-Andrews instrument (Tennant & Andrews, 1976) for use with middle-aged women. Reports of psychological symptoms was the main discriminator between clinic and non-clinic groups. There were no significant group differences in reports of occurrence of hot flushes, but the patients described them

as being more severe.

Psychologists have emphasized the cognitive processes involved in perception, interpretation and explanations of physical sensations (Pennebaker, 1982; Leventhal et al, 1980), attribution of symptoms and locus of control (Wallston et al, 1987; Hewstone, 1983) and beliefs about health and illness (Becker & Maiman, 1983). Patients are seen as active in attempting to understand and explain their symptoms. They will develop their own 'lay explanations', attribute symptoms to particular causes and have particular beliefs about prognosis, treatment and its risks and benefits. These factors are assumed to influence whether medical help is sought. Initially global models of attribution were considered, such as internal-external attributions. However there is no single kind of attribution that is desirable in every condition (Watts, 1982). This statement is particularly relevant to the menopause where there are a variety of possible attributions of symptoms. In general there is some evidence that people who interpret events as being under one's own control (internal locus of control) show more constructive health behaviour (Johnson & Meyer, 1974). However help seeking behaviour has been better predicted by considering specific beliefs about specific problems.

Although these concepts have been applied to menstrual cycle research (Ruble & Brooks-Gunn, 1979; Koeske & Koeske, 1975; Sherif, 1980) the study of cognitive factors influencing reactions to the menopause has been slow to develop. Sledmere (1983) in an unpublished study compared 30 women attending a menopause clinic with 30 controls matched on age, menopausal status and presence of vasomotor symptoms. Health Locus of Control was assessed by the Multi-dimensional Health Locus of Control Scales (Wallston et al, 1978) which assess the extent

to which health is seen to be controlled by self, powerful others or chance. Attitudes and beliefs were assessed as well as current symptoms. The clinic group of women reported significantly more psychological symptoms. Belief in powerful others as controllers of health also discriminated between groups. However this effect became non-significant when depressed mood was controlled for. Two specific beliefs discriminated between the groups. These were:

(i) the menopause is an experience that depends upon your attitude of mind, and

(ii) the menopause should be regarded as a natural event.

The clinic sample were however already receiving medical treatment, thus group differences may be influenced by reactions to treatment and medical consultations. Further investigations using larger samples is needed. So far there is consistent evidence that psychological distress is greater in women seeking medical help for the menopause. The concept of latent need has been used to imply that contact with medical services may represent a search for aspects of the doctor-patient relationship, eg. reassurance and support, rather than standard medical treatment (Mechanic, 1983).

Finally, availability of medical services, for example menopause clinics, and doctor variables are often neglected. In an interesting study of doctors' management of the menopause in Montreal, Lock (1985) discovered a diverse collection of clinical models, some doctors prescribing oestrogen to all patients, others being very selective. Each physician believed in his own approach. There is also some evidence that medical personnel ie. doctors and nurses, hold more pathological views of the menopause than the menopausal women themselves (Cowan et al, 1985). Thus medical (doctor) and lay models

(patient) may influence whether medical treatment is offered and adhered to. Factors which have not received attention are past experience of gynaecological or menstrual problems, developmental factors such as family attitude to menstruation and menopause, as well as peer group norms and cultural stereotypes.

(iv) Summary & Conclusions

Although there is little available evidence, menopausal women do not appear to be particularly high users of medical services. Perimenopausal women show a tendency to increased use of lay consultation and self medication. They attend their doctors infrequently but regularly, and do not appear to automatically receive oestrogen therapy. The use of oestrogen therapy appears to be fairly low, however, further research using different populations is needed. Women who have undergone surgical menopause are, in contrast, high users of both medical services and medication.

The decision to seek medical help for symptoms occurring during the menopause may depend upon complex cognitive, emotional and social factors, as well as chance factors and type of medical services available. There is growing evidence that experience of emotional distress may precipitate consultation. However specific beliefs about the menopause may also influence the type of help sought.

CHAPTER 5

Summary of Literature Review and Implications for Present Research

The menopause does not appear to be the inevitable source of symptomatology as it was once thought to be. Vasomotor symptoms (eg. hot flushes, night sweats) and vaginal changes are the only symptoms which are definitely associated with menopausal status. Psychiatric disorder does not appear to be more prevalent at this time. The results pertaining to psychological and minor somatic changes are conflicting and inconclusive. Methodological problems and polarized theoretical models have impeded research. In particular unstandardized symptom lists have been used in assessment with post hoc grouping of items. Frequently, cognitive, mood, sleep and somatic items have been summated. This has prevented the examination of differential effects of causal mechanisms. Precise definitions of menopausal status have often been lacking. Only rare attempts have been made to control for age effects in cross-sectional studies. The effects of cognitive factors on symptom response have usually been ignored.

In spite of these inconclusive results, explanations have been proposed - biological versus sociocultural - to account for psychological and minor somatic experiences at this time. No detailed interactive model has been developed. Theoretically it is possible that biological mechanisms, whether mediated by central or autonomic nervous system changes, may lead to psychological symptoms. However, in general there is no conclusive evidence to support this explanation. The variance in psychological symptoms is more readily accounted for by psychosocial

factors. The effect of non-specific changes in arousal during the peri- and postmenopause, whether associated with hot flushes or fluctuating hormone levels, has not been given due emphasis in biological explanations. Similarly the possibility that psychosocial factors may actually influence hormone levels and hence lead to increases in vasomotor symptoms deserves further consideration.

Factors such as past psychiatric history, neuroticism, low self-esteem, social class and presence of stressful life events, are associated with symptom reports. However, these factors are not specific to the menopause. There is little evidence supporting the empty nest syndrome as a major life crisis which coincides with the menopause. No clear support was found for psychoanalytic theories of the menopause. The available findings provide more evidence for a role theory model, suggesting that women who depend for self-esteem on purely biological aspects of the female role may be more vulnerable at the menopause. Since the interpretation of physiological, emotional or social changes during this time will influence women's experience and reactions to the menopause, the study of cognitive factors, such as beliefs and expectations, would seem to be vital if we are to attempt to understand individual differences in menopausal experience and reactions. In addition the incorporation of cognitive factors into a theoretical model of the menopause is essential to understanding the relationship between biological and social factors.

From the survey of the literature menopausal women do not appear to be particularly high users of medical services. Psychological and social factors play an important role in determining medical help-seeking behaviour. Since oestrogen therapy is one of the main medical treatments advocated for 'menopausal symptoms' there may be a mismatch between the type of problems experienced and treatment received. Investigation of the

characteristics of women seeking medical help may enable an appropriate range of treatments to be planned.

Most studies of the menopause have used cross-sectional designs. Given that the menopausal stages occur in a gradual process, longitudinal studies are vitally needed to enable prediction of future symptoms at each stage and to detect the characteristics of women who may be more at risk of experiencing problems.

In view of the methodological problems and omissions discussed above, there is now a need to bring together methodological improvements and more sophisticated data analysis, so that the nature and prevalence of symptoms occurring during the menopause may be better understood. In particular, improvements would need to include more detailed assessment of symptoms; to control for age effects; to examine cognitive factors; to have an assessment of hormonal variables and, if possible, to have a prospective longitudinal component. This task is the primary focus of the current study.

CHAPTER 6

Aims and Hypotheses

This study has four major aims. First, to investigate whether emotional, somatic or vasomotor symptoms change as women progress through the menopause. Secondly, to identify the characteristics of women who experience particular symptoms during the menopause, and thirdly to predict behavioural reactions to the menopause, that is, seeking medical help and medication usage. The fourth aim is to provide a preliminary investigation of cognitive factors and to examine the effect of cognitive factors upon experience of the menopause and help-seeking behaviour.

The following hypotheses in Section (i) are exploratory, confirmation of these may appear to be assumed in outlining hypotheses in Section (ii).

(i) Symptom prevalence and menopausal status

It is hypothesized that:

1. Vasomotor symptoms increase in peri and postmenopausal women.
2. Perimenopausal women report no more psychological or somatic symptoms than premenopausal women.
3. Postmenopausal women report:
   a. more sleep disturbance than pre or perimenopausal women
   b. more sexual problems than pre or perimenopausal women

(ii) Predicting individual differences in experience of the menopause

It is hypothesized that:

4. Menopausal status is the major factor accounting for variation in experience of vasomotor symptoms.

5. Psychosocial variables are the major factors accounting for variation in experience of psychological and somatic symptoms in menopausal women. In particular it is hypothesized that:

   a. women who have had past emotional problems are more likely to report symptoms
   b. women experiencing recent stressful life events are more likely to report symptoms
   c. working class women are more likely to report symptoms than middle class women
   d. married women are more likely to report symptoms than single women
   e. divorced and widowed women are more likely to report symptoms than married or single women
   f. non-working women are more likely to report symptoms than working women
   g. children's presence at home will not influence reporting of symptoms
   h. women who hold negative stereotyped beliefs about the menopause are more likely to report symptoms
   i. women who expect to experience symptoms during the menopause are more likely to report symptoms
   j. women who report past menstrual problems are more likely to report symptoms

6. Age, independent of menopausal status is associated with symptom

groups. In particular it is hypothesized that:

a. Sleep problems increase with age.

b. Sexual interest decreases with age.

c. Sexual activity decreases with age.

(iii) <u>Predicting help seeking behaviour during the menopause</u>

It is hypothesized that:

7. There are no differences between pre, peri and postmenopausal women in frequency of visits to the doctor.

8. There are no differences between pre, peri and postmenopausal women in overall use of medication.

9. Psychosocial factors discriminate between women referred to a menopause clinic and non-clinic attenders. In particular, it is hypothesized that:

a. menopause clinic attenders report more psychological symptoms than non-clinic attenders

b. menopause clinic attenders are more likely to report being under stress than non-clinic attenders

c. menopause clinic attenders are more likely to be middle class than non-clinic attenders

d. menopause clinic attenders are more likely to hold negative stereotyped beliefs about the menopause than non-clinic attenders

e. menopause clinic attenders are more likely to hold certain specific beliefs about the menopause than non-clinic attenders. In particular:

(i) that experience of the menopause does not depend upon one's attitude of mind

(ii) that the menopause is associated with ageing

(iii) that the menopause is associated with considerable symptomatology.

10. Vasomotor symptoms discriminate between women referred to a menopause clinic and non-clinic attenders.

11. Psychosocial factors discriminate between menopause clinic and non- clinic attenders more accurately than vasomotor symptoms.

(iv) Additional Hypotheses

It is hypothesized that:

12. The dominant view of the menopause held by pre, peri and menopausal women is that the menopause brings negative physical and psychological changes to most women.

13. The level of symptoms reported by women during the menopause is lower than that expected from stereotyped beliefs.

14. Women hold certain beliefs about the menopause which reflect negative consequences. In particular it is hypothesized that:

a. women believe that the menopause is associated with ageing

b. women believe that the menopause is psychologically upsetting

c. women believe that the menopause brings physical changes

d. women believe that the menopause brings reduced sexual enjoyment.

15. Women hold certain beliefs about the menopause which reflect relief. In particular it is hypothesized that:

a. women are pleased to cease menstruation during the menopause

b. women are pleased to no longer become pregnant following the menopause.

16. Women who have experienced hysterectomy (without oophorectomy)

are likely to report more symptoms than women experiencing a natural menopause.

CHAPTER 7

Research Design

(i) Outline of research design

The design of this study can be divided into four stages.

1. Firstly a single sample, cross-sectional study of 850 women aged between 45 and 65 years (inclusive) was carried out. This was a postal survey and the sample was a non-menopause clinic sample. A questionnaire was developed to investigate symptom experience, health and psychosocial factors. The questionnaire was designed in the light of the methodological issues discussed earlier. In particular, a multivariate analysis was carried out to examine the relationships between symptoms. A final section of the questionnaire included specific questions and a new questionnaire, developed to tap both stereotypic as well as specific beliefs about the menopause.

The single group was divided into three menopausal categories (pre, peri and post) which were compared on symptom reports, general health and cognitive measures. The influence of age and menopausal status upon symptom reports was examined within an age band in which all levels of menopausal status were represented. When prediction of symptom experience was attempted, the dependent variables were symptoms or derived symptom scores and the independent variables were menopausal status (3 categories), psychosocial and cognitive factors (stereotypes, expectations and beliefs). In view of the limitations of cross-sectional studies, such as unravelling the causal relationships between symptoms and events, a longitudinal study

was carried out.

2. Fifty-six women who were premenopausal when sent the original questionnaires, were followed up three years later and sent a second questionnaire with additional items. Women who were then peri or post menopausal formed the prospective sample. Symptom reports, health ratings, psychosocial factors and cognitive factors were compared to assess change in a repeated measures design. Symptom reports on the second occasion were dependent variables while variables from both assessments became independent variables in order to clarify prediction and causal relationships.

3. Ideally, in order to predict symptom occurrence and comment on the relative importance of explanatory theories, hormone assessments should be included. As this was not feasible in the two studies mentioned a separate sample of women, for whom hormonal measures were already available, was investigated. Sixty two women were studied representing the three categories of menopausal status. In a single group design levels of oestradiol, follicle stimulating hormone and leuteinizing hormone were correlated with derived symptom scores.

4. The final study was designed to examine the major factors which characterize women who seek medical help for problems experienced during the menopause. This was a comparison of the non-clinic sample and a sample of 200 new patients who had been referred to a specialist menopause clinic. Clinic vs. non-clinic grouping became the dependent variable and symptom report, psychosocial factors, stereotypes and beliefs as well as reported health status were the independent variables. Additional information about

help-seeking behaviour was drawn from the initial cross-sectional survey as well as the follow-up study. Medication use, oestrogen therapy use, reported visits to general practitioners and reports of having seen a doctor because of the menopause were all considered as dependent variables; the sample being divided into medication users or non-users and attenders or non-attenders in turn.

(ii) Statistical Analysis

The analysis will be outlined in the four sections as above.

1. A questionnaire was developed to provide an adequate measure of symptom experience during the menopause. In order to examine symptom relationships and to provide summary symptom scores a factor analysis of the 36 symptoms (rated on four point scales) was carried out, using the principal components method with varimax rotation (Nie et al, 1975). While the symptom ratings were ordinal scales the method was considered to be appropriate given the aims and the large sample size.

Both derived symptom scores and individual symptoms were examined in relation to menopausal status and age. For derived scores analysis of covariance (MANOVA programme, SPSS; Nie & Hull, 1981) was used so that the effects of menopausal status, age and any interactions could be separately estimated. For individual symptoms, scored present or absent, frequencies were examined and a chi-square analysis used. Possible interactions between age and menopausal status were observed fitting a linear logistic model which can be used when the dependent variable is binary (SAS Prog. Logist; Harrel, 1983; Cox, 1970). One-way analyses of variance (Nie et al, 1975) and chi-square tests were used as appropriate to examine any change in other variables, such as general health ratings, medical attendance and

cognitive factors, with menopausal status (pre, peri and post).

Next, psychosocial, cognitive and health variables were considered as predictors of derived symptom scores. Firstly one-way analyses of variance were carried out followed by a multiple stepwise regression analysis (Nie et al, 1975) to determine which background factors, including menopausal status, could best account for the presence of symptoms. Interactions between these independent variables, such as illness, employment and symptoms, were examined by two-way analysis of variance tests (MANOVA programme, SPSS; Nie & Hull, 1981).

2. The longitudinal comparisons were made using paired t-tests and McNemar tests for two related samples, for parametric and non-parametric tests as appropriate (Nie et al, 1975; Nie & Hull, 1981). These comparisons were carried out to examine any changes in variables with menopausal status. Prediction of symptom scores at peri or postmenopause was attempted using simple regression analyses and multiple stepwise regression analyses (Nie et al, 1975).

3. The association between symptom scores and hormone levels were examined using Pearson product moment correlations (Nie et al, 1975) since all measures were continuous.

4. Menopause clinic attenders were compared with the non-clinic sample on symptom scores, psychosocial, health and cognitive factors, using one-way analysis of variance and chi-square tests as appropriate (Nie et al, 1975). Variables were selected which discriminated between the two groups and were used in a discriminant function analysis (Nie et al, 1975). This analysis estimates which combination of variables best discriminate between clinic

and non-clinic attenders. The classification rate was compared for psychological versus biological variables. Finally linear logistic models were fitted in order to examine the effects of specific beliefs (binary data) upon clinic vs non clinic attenders, controlling for the effects of socioeconomic status (GLIM version 3.77, 1985).

CHAPTER 8

Development of New Measures for use in the Present Study

I. A Measure of Psychological and Somatic Symptoms

(i) Development of the Scale

A specific scale was developed to tap recent experience of psychological and somatic symptoms. The scale was designed to provide data for comparison with other studies, to examine symptom reports in relation to standardized measures of psychological morbidity and finally to avoid the major methodological weaknesses of earlier studies. In addition and of more importance is the aim to investigate relationships between symptoms, rather than base symptom groupings on post-hoc assumptions about the relationships between symptoms.

The term symptom is used here, however, semeion (Wilbush, 1985) or internal sensory experience may be more accurate for certain items. Thirty six items reflecting mood state, physical sensations and experiences, sexual behaviour and vasomotor and menstrual symptoms were included (shown in Table 2 and on pages 3 and 4 of the Women's Health Questionnaire in Appendix 1). The first 12 items were drawn from the Leeds scales for Anxiety and Depression (Snaith et al, 1976). The remaining items include the majority of symptoms referred to in other studies, such as Kaufert & Syrotuik (1981), as well as general symptoms not necessarily expected during the menopause.

Hot flushes and night sweats, commonly referred to as vasomotor symptoms, were presented as separate items. Certain somatic symptoms were included since they have been found to occur together

(Kaufert & Syrotuik, 1981) and are attributed to the menopause by gynaecologists. These are:

pins and needles in hands and feet

aches and pains in limbs.

In view of the effect of oestrogen on the vaginal wall and in some cases on the urinary tract, questions were asked about vaginal dryness and urinary frequency. Additional items were included to complement the Leeds Scale questions, such as an item on sleep disturbance as well as less specific items - dizzy spells, tiredness, headaches - which may be associated with psychological or somatic problems.

A group of items was added which may be sensitive to hormonal changes during menstruation, such as breast tenderness, clumsiness, heavy periods and abdominal bloating. Finally items tapping possible changes in sexual satisfaction, sexual interest, and sexual activity were presented, as well as two items attempting to assess any changes in subjective evaluation of concentration and memory.

The Leeds scales items were chosen because these scales were developed to assess mood in general populations (ie. in non-clinic samples) and because the individual items reflect emotional, cognitive and somatic aspects of mood. In particular these scales include items reflecting both depression and anxiety in short scales. Two scales, the Leeds Self-Assessment of Depression General Scale and the Leeds Self-Assessment of Anxiety General Scale, were developed to be used in studies where patients do not have a formal psychiatric diagnosis and as case-finding instruments. High correlations were found between these rating scales and observer ratings using the Hamilton rating scales (Hamilton, 1959, 1967) for a mixed group of psychiatric patients (Snaith et al, 1976). Secondly reasonable discrimination was

demonstrated between depressed patients (of mixed diagnosis) and healthy non-patients (n=93) using cut off points between scores of 6 and 7. These scales have recently been used to assess mood in postpartum women (Owen & Campbell, 1987), however, to date there are no published studies using these scales in older samples.

The Beck Depression Scale (Beck, 1961) was an alternative option. However the emphasis upon depressive cognitions and the lack of anxiety items, as well as the fact that the Beck Scale is an 'interviewer-assisted' scale ie. is preferably rated by an interviewer (Carroll et al, 1973) rendered it less practical than the Leeds scales. There are few scales assessing psychological symptoms in the general population with adequate normative data on the 45-65 age band. Kaufert & Syrotuik (1981) included the Bradburn Index of Well Being (Bradburn, 1974) to assess psychological distress. This scale has been used in middle aged North American samples, however the form and scoring of the scale would be difficult to incorporate into a symptom questionnaire. Since one aim of the current study is to examine the relationship between symptoms, the Leeds Scale had the advantage of being easily incorporated into a general health questionnaire.

When established scales have been used their validity is likely to be affected by the possible different clustering of symptoms in later life. For example, sleep problems and appetite changes may reflect age changes rather than symptoms of depression. In view of this, the grouping of items into anxiety and depression by Snaith et al (1976) is not viewed as fixed in this study. The grouping of items is investigated in the next section and their relationship to other standard measures of psychiatric morbidity are discussed in the final section.

Four point scales as used in the Leeds Scales were used to rate the extent to which all symptoms were experienced:

Yes definitely Yes sometimes No not much No not at all

This method was used in the Leeds Scales and was continued for additional items for ease of completion. Since current experience rather than retrospective reports was wanted, responses were elicited for symptoms occurring currently or within the past few days.

Although visual analogue scales are generally considered to be more sensitive when assessing change (Huskisson, 1974; Keefe, 1982), adjectively linked scales are likely to be less prone to error when used in a postal epidemiological survey when practice in the use of scales is not possible. Symptom statements were worded simply with several questions phrased positively in order to avoid overemphasis on negative experiences. An additional question (item 37) was included to assess subjects' perception of their ability to cope with the rated symptoms.

The questionnaire was completed by 20 people including patients and hospital staff, within the study age range, in the author's presence. The majority were able to complete the scale without problems and they spent an average 10-12 minutes on the task. The need to reassure and take adequate steps to ensure confidentiality was raised. Although rating of the sexual items may appear cumbersome, it gave an assessment of the proportion of women who are sexually active with a partner without needing to ask this question directly. The women piloted did not feel that these questions were too personal, however, missing data and non-sexually active responses

became inevitably inseparable. As a rule of thumb it was decided to score omissions of these items as missing data if the whole page was omitted but as sexually inactive if only the particular sexual items were omitted. Item 34 asks about vaginal dryness but only in relation to sexual intercourse. Although lower estimates of this problem may therefore be expected, vaginal dryness is likely to become problematic largely in relation to sexual intercourse.

(ii) The Factor Analysis

The symptom scale formed the major part of a larger questionnaire which included demographic, general health questions, as well as a final section including questions on cognitive factors, including beliefs and expectations about the menopause (the full questionnaire is shown in Appendix 1). The questionnaire was called the 'Women's Health Questionnaire' in order to avoid emphasis on menopausal symptoms. The survey was presented as a survey of women's health. The Women's Health Questionnaire was designed to examine relationships between symptoms and menopausal status. This section is concerned specifically with the associations between particular symptoms, using factor analysis.

Subjects and Methods: Subjects were drawn from a large sample of volunteers attending an ovarian screening programme at Kings College Hospital, London. They learned about the ovarian screening programme from newspaper advertisements and a radio programme, and came predominantly from London and South East England. One thousand and ninety women aged between 45 and 65 years were sent a questionnaire prior to their clinic visit by the clinic nurse. The questionnaires

were sent out to each consecutive new patient in batches of approximately 200 every two months between August 1982 and June 1984. This was carried out for administrative reasons and also to ensure that questionnaires were completed during all seasons of the year. A covering letter was included giving the women details of her appointment and asking her to complete and return the questionnaire. It was emphasized that the questionnaire was completely independent of her hospital notes, would be kept separately and that the responses would be treated with confidence and used only for this study of women's health.

A factor analysis was carried out in order to examine the relationships between the 36 symptoms and to provide meaningful summary scores for symptom groups. The symptom data, rated on four point scales, was used in a Principal Components Factor Analysis with varimax rotation (Nie et al, 1975). As is usual practice, factors were extracted having eigenvalues greater than unity (an eigenvalue being related to the amount of variance accounted for by the factor).

Results: Eight hundred and fifty women returned usable questionnaires, giving a response rate of 78%. When women receiving oestrogen therapy (8%) and those who had undergone hysterectomy (12%) were excluded, the sample size became 682. In the sample 2.4% had had both hysterectomy and oestrogen therapy. All women in the sample had ovaries. Sample characteristics are shown in Table 2. The ages ranged between 45 and 65 years with a mean of 52.3 (s.d. 4.92).

Table 2

Factor analysis: sample characteristics n=682

Age 52.3 (4.92) years Range 45-65 years

Marital Status

Married	82.1%
Single	5.9%
Divorced	7.8%
Widowed	4.2%

Employment Status

Full-time employment	29.0%
Part-time employment	37.8%
Total employed	66.8%

Socioeconomic Status

I & II	III	IV & IV	DK/retired
26%	53.6%	18.6%	1.8%

The results of the factor analysis with full details of rotated factor loadings are shown in Table 3. Nine factors were selected which explained 55.7% of the variance. Symptoms with a correlation of 0.3 or higher with each factor were selected to form groups which were given descriptive labels (see Table 4). Somatic symptoms and vasomotor symptoms constituted separate factors. Psychological symptoms were classified in two main groups - depressed mood and anxiety/fears - and the analysis provided a separation of sexual behaviour, cognitive difficulties and sleep problems.

Three items - tiredness, tense/wound up and miserable and sad - loaded with a correlation of 0.3 on more than one factor. These items were retained within the somatic, anxiety and depression factors respectively, having highest loadings upon these factors. There was a degree of overlap between the somatic factor and the menstrual factor with respect to abdominal cramps and bloatedness. These items had

Table 3

Factor Analysis: Rotated Factor Loadings (n=682, age range = 45-65 years)

	Factors								
	1	2	3	4	5	6	7	8	9
1. early wakening	.20	.14	.02	.06	.08	.06	*.55*	.04	.08
2. frightened /panic	.14	.21	.16	.07	*.64*	.12	.19	.09	.01
3. miserable/sad	*.46*	.01	.30	.03	.34	.14	.24	.24	-.08
4. anxious out of house	.19	.18	.14	.00	*.40*	.02	-.04	-.05	.08
5. loss of interest	*.61*	.11	.23	.05	.14	.17	.15	.11	.08
6. palpitations	.06	.27	-.02	.14	*.43*	.08	.21	.15	-.01
7. lack of enjoyment	*.63*	.11	-.00	.01	.04	.07	.04	-.03	.10
8. life not worth living	*.41*	.14	.28	-.00	.19	.20	.02	.02	-.05
9. tense/wound up	.30	.14	.20	.14	*.36*	.15	.32	.25	-.13
10. poor appetite	*.33*	.09	-.03	.00	.06	.04	.17	-.06	.06
11. restlessness	.21	.14	.19	.06	.24	-.06	*.40*	.11	-.21
12. irritability	*.35*	.17	.29	.08	.23	.13	.23	.28	-.01
13. worry growing old	.08	-.01	.26	-.03	.26	.27	.06	.10	-.03
14. headaches	.19	*.38*	.05	.13	.01	.13	.21	.16	-.05
15. tiredness	.32	*.38*	.22	.11	.04	.06	.24	.19	.08
16. dizzy spells	.10	*.45*	.05	.10	.21	.16	.07	.09	-.02
17. breast tenderness	.06	.16	.07	-.01	.20	-.01	-.03	*.49*	-.05
18. backache/pains	.10	*.39*	.01	.09	.21	-.04	.13	.07	.13
19. hot flushes	.03	.17	.02	*.95*	.05	.05	.07	-.05	.02
20. clumsiness	.21	.29	*.35*	.20	.21	.07	-.02	.13	-.02
21. not lively/ excitable	-.09	.03	.15	.03	.13	-.13	.07	.08	*-.31*
22. abdominal cramps	.06	.39	.06	.03	.08	-.09	-.02	*.44*	.19
23. sick/nausea	.15	*.48*	.11	.02	.06	-.01	.09	.21	-.01
24. loss of sexual interest	.20	.08	.06	.06	.09	*.53*	.10	-.03	.23
25. no feelings well being	*.40*	.01	.13	.06	.08	.07	.20	.04	.36
26. heavy periods	-.08	.02	-.00	-.10	-.07	-.06	-.01	*.62*	-.15
27. night sweats	.03	.25	.08	*.63*	.07	.04	.17	.01	.03
28. stomach bloated	.06	.30	.05	.15	.09	.06	.13	*.40*	.10
29. sleep difficulty	.13	.23	.03	.14	.08	.04	*.65*	-.11	.11
30. pins & needles	.01	*.46*	.10	.11	.09	.25	.11	.00	-.00
31. sexual dissatisfaction	.20	-.08	.13	-.00	.03	*.76*	.01	.03	.14
32. unattractive	.10	.12	.09	.07	.10	.22	.14	-.03	*.56*
33. concentration	.16	.12	*.72*	.01	.13	.10	.10	.04	-.08
34. vaginal dryness	.00	.29	.11	.14	.09	*.52*	-.00	-.18	.07
35. urinary frequency	.06	*.31*	.27	.16	.08	.02	.11	.23	.08
36. poor memory	.04	.13	*.75*	.05	.05	.10	-.00	.00	.09

Table 4

Factor Analysis: Symptom groups with descriptive labels and percentage variance explained

Factor 1	'Depressed mood' (47.7%)	
	loss of interest in things	(.6)
	lack of enjoyment	(.6)
	miserable and sad	(.5)
	no feelings of well being	(.4)
	life not worth living	(.4)
	irritability	(.4)
	loss of appetite	(.3)
Factor 2	'Somatic Symptoms' (12.2%)	
	sickness/nausea	(.5)
	dizzy spells	(.5)
	pins & needles in hands/feet	(.5)
	backache/pains in limbs	(.4)
	tiredness	(.4)
	headaches	(.4)
	urinary frequency	(.3)
Factor 3	'Cognitive difficulties' (10.8%)	
	poor memory	(.7)
	difficulty in concentration	(.7)
	clumsiness	(.4)
Factor 4	'Vasomotor symptoms' (7.6%)	
	hot flushes	(.9)
	night sweats	(.7)
Factor 5	'Anxiety/Fears' (6.4%)	
	frightened/panicky feelings	(.6)
	palpitations/butterflies in stomach/chest	(.4)
	feel tense, wound up	(.4)
	anxiety leaving house alone	(.4)
Factor 6	'Sexual behaviour (4.7%)	
	dissatisfaction with sexual relationship	(.7)
	loss of sexual interest	(.5)
	vaginal dryness	(.5)
Factor 7	'Sleep problems' (4.3%)	
	difficulty getting off to sleep	(.7)
	early morning wakening	(.6)
	restlessness	(.4)
Factor 8	'Menstrual' (3.6%)	
	heavy periods	(.6)
	breast tenderness	(.5)
	stomach bloated	(.4)
	abdominal cramps	(.4)
Factor 9	'Attractive' (2.8%)	
	feeling attractive	(.6)
	feeling lively/excitable	(.3)

higher loadings on the menstrual factor and were retained in this factor. In addition 'no feelings of well being' had higher loadings (.4) on the depressed mood factor, but also loaded (.36) on the final factor (Attractiveness). Since menstrual symptoms and menopausal status were confounded and since Factor 9 accounts for only a small proportion of the variance these latter two factors were excluded from the main study (see Chapter 9). Item 13 did not have loadings of .3 on any factor and was therefore not included with factor scores.

The factor analysis was repeated on the 45-55 and 56-65 year age groups separately to see whether the factor structure differed between these age bands. The factor groups were very similar. The main differences were that in the case of the younger group 'sickness/nausea' and 'urinary frequency' symptoms were associated with Factor 8 ('Menstrual') rather than Factor 2 (Somatic). For the older women Factor 1 (Depressed Mood) became separated into two groups. One was characterized by 'loss of interest in things' and 'anxiety leaving the house', while the other reflected depression with biological symptoms of poor appetite and sleep disturbance.

Since the purpose of the study was to describe the relationship between symptoms and to summarize symptom scores, and in view of the overall similarity in factor structures, it seemed appropriate to use symptom groupings based on the 45-65 age range for derivation of summary scores.

Factor scores were derived by summing the symptom scores, rated present or absent, for each factor and dividing by the number of items in each factor group. Thus each factor score will have a minimum score of 0 and a maximum of 1. The 4 point scale was collapsed into two categories hence scores 0 and 1 became 0, and 2 and

3 given a score of 1. The factor analysis was performed on a four point scale, but the scale range was reduced to only presence or absence for use in the studies reported in the following chapters. Since the scale was to be used to examine the relationships between women of different menopausal status, the raw individual symptom scores were examined to see whether any differences between menopausal groups might be missed by scoring the items in two rather than four categories. For the majority of items there were no differences. However for one symptom, sickness/nausea, the menopausal group differences occurred at a different point on the scale (ie. between 0 and 1, 2, 3 rather than between 0, 1 and 2, 3). If this item was scored 0 vs 1, 2, 3 then the discrepancy between the two scoring methods disappeared. This scoring method was thus adopted for this item to increase the sensitivity of the scale.

Table 5

Derived factor scores: means and standard deviations
(n=682, age range 45-65 years)

Factors	Mean	Standard Deviation
Depressed Mood	0.22	.23
Somatic symptoms	0.39	.25
Cognitive difficulties	0.47	.36
Vasomotor symptoms	0.43	.44
Anxiety/fears	0.35	.28
Sexual behaviour	0.32	.32
Sleep problems	0.45	.36
Menstrual	0.38	.29
Attractive	0.38	.29

The means and standard deviations of the scores for each factor are shown in Table 5. Reliability and validity are discussed in the following sections.

(iii) Reliability

The questionnaire's test-retest reliability was assessed. Since the questionnaire was designed to assess differences between menopausal stages it was important to determine the extent to which the derived factor scores were sensitive to minor state fluctuations. Forty-eight women aged between 45 and 65 years were recruited from hospital staff and from the ovarian scanning clinic at Kings College Hospital. The mean age was 48.6 years (s.d. 5.24). They were asked to complete a Women's Health Questionnaire and repeat the exercise two weeks later. For hospital staff (n=28) the two questionnaires were administered by the author on separate occasions. For the ovarian scanning group (n=20) the first questionnaire was sent in the post and the second was completed after the scanning visit. Women were excluded on the second occasion if they had had any major life change during the intervening period. No women had any abnormalities detected on ovarian screening.

Correlations between factor scores are shown in Table 6. Pearson correlations were used (Nie et al, 1975). These ranged between 0.69 to 0.96 with an average of 0.86. Excluding Factor 9 (attractive) which explained a small proportion of the overall variance, the remaining correlations were consistently high, being above .75 which is considered a respectable level for test-retest reliability (Ware, 1976).

Table 6

Test retest reliability, Pearson correlation coefficients for derived factor scores

		Pearson correlation coefficient	Significance level
1.	Depressed mood	.91	p<.000
2.	Somatic symptoms	.93	p<.000
3.	Cognitive difficulties	.86	p<.000
4.	Vasomotor symptoms	.83	p<.000
5.	Anxiety/fears	.88	p<.000
6.	Sexual behaviour	.96	p<.000
7.	Sleep problems	.78	p<.000
8.	Menstrual	.89	p<.000
9.	Attractive	.69	p<.000

Having already examined the relationship between symptoms using factor analysis, it was not felt necessary to assess the internal consistency of the scales separately.

(iv) Validity

The concurrent validity of the psychological factors (depressed mood and anxiety/fears) was examined. Although there appear to be no ideal instruments with which to compare these scales, in view of the age and physiological states of the sample, a comparison was sought with the General Health Questionnaire (GHQ) (Goldberg, 1972; Goldberg et al, 1976) and with the Leeds General Scales for anxiety and depression (Snaith et al, 1976) as these questionnaires were aimed to assess mood disturbance in community

samples.

Fifty-five women completed the Women's Health Questionnaire (WHQ) and the GHQ (in that order). Forty eight were the women described above in the reliability study and an additional seven women were recruited from the Menopause clinic, while waiting an appointment. The clinic sample were added in an attempt to ensure a reasonable range of scores. The overall mean age was 50.98 (s.d. 5.60) years.

Table 7

The relationship between depression, anxiety scales and the GHQ; means, s.d.'s and Pearson correlations.

	Mean	Standard deviation
GHQ	8.54	8.13
Leeds Depression	6.03	3.90
Leeds Anxiety	8.00	4.92
FI Depressed Mood	0.22	0.19
F5 Anxiety/Fears	0.16	0.15

Correlation Coefficients

	GHQ	Leeds Depression	Leeds Anxiety
FI Depressed Mood	.81	.90	.70
F5 Anxiety/Fears	.46	.54	.81
GHQ		.80	.64

The 30 item GHQ was used since this version was devised by leaving out questions from the full version that were more frequently

responded to by patients with a physical illness (Finlay-Jones & Murphy, 1979). The Leeds scale scores could be calculated from the relevant items contained in the WHQ. In Table 7 are the means, standard deviations and Pearson correlation coefficients showing the relationships between the above scales. All correlation coefficients were highly significant. The means of GHQ and Leeds scales are notably above the recommended cut-off points for caseness, that is 5+ points for the GHQ and 6+ points for the Leeds scales. Caseness refers here to non-psychotic psychiatric illness. Some women in the menopause clinic group were very symptomatic which may partially explain these high overall scores as well as the large variation in scores.

The new scales of depressed mood (Factor 1) correlated most strongly with the Leeds depression scale but also at a high level (.81) with the GHQ. The anxiety/fears scale (Factor 5) correlated strongly with the Leeds anxiety scale but to a lesser extent with the GHQ. The new depression scale and the Leeds depression scale were equally associated with GHQ scores. Both Leeds and the new depression scale included five identical 'items'. In the Leeds scale insomnia was included as a depressive symptom, while in the new scale irritability and 'no feelings of well being' were associated with other depressive items. The Leeds anxiety scale included irritability and restlessness in addition to the four items present in the new anxiety scale.

In order to be able to compare the level of psychological symptomatology in the following studies with that of other populations, a cut-off point was sought for the new depression and

Table 8

Percentages of women classified as cases and non-cases according to GHQ and new scales (n=55)

Depression

GHQ	Non-case	Case
Non-case	47.9	2.1
Case	10.4	39.6

%

Correctly classified 87.5%

Misclassified 12.5%

Anxiety

GHQ	Non-case	Case
Non-case	41.7	8.3
Case	27.1	22.9

%

Correctly classified 64.6%

Misclassified 35.4%

anxiety scales with reference to the GHQ, since this latter questionnaire is widely used. Taking the recommended cut-off point for the GHQ (above 5 points), 87.5% of the sample were correctly classified using a cut-off point of above .43 points for the new depression scale (see Table 8). For anxiety, the equivalent cut-off point of above .75 points enabled only 64% to be correctly classified. For both scales the cut-off points chosen led to an underestimate of GHQ cases, with a low false positive error rate.

(v) Discussion

A measure of psychological and somatic symptoms was developed to assess the nature and prevalence of symptoms in women aged between

45 and 65 years. The relationship between symptoms was examined using factor analysis. This method provided a detailed breakdown of relatively independent symptom clusters. As in other studies (Kaufert & Syrotuik, 1981; Greene & Cooke, 1980) vasomotor symptoms, somatic symptoms and psychological symptoms formed particular groups. However in the current study, psychological symptoms were separated into 'depressed mood' and 'anxiety/fears' groups. In this sample sleep problems and sexual difficulties, such as loss of libido, were not subsumed under the domain of depressed mood but formed separate factors. The depression factor differed from the Leeds depression scale in that it included irritability but not insomnia. Symptom relationships and perhaps also the nature of depressed mood may therefore be slightly different in this age group. The use of this detailed breakdown of symptoms may enable more accurate explanation of specific symptom clusters.

The test-retest reliability (2 weeks) of the factor scores was high for women who had not undergone a major life change in the intervening period. Concurrent validity was examined comparing the psychological factors with the GHQ and the Leeds general scales. The new depression scale correlated highly with the Leeds depression scale, however the items contained in the new scale may be considered to be more appropriate for use in this older sample. A reasonable classification rate was calculated using a depression scale cut-off (above .43) which would enable comparison with GHQ case prevalence rates. This represents a conservative estimate, the new scale tending to miss a small proportion of cases rather than to give false positives. The overall aim was to provide a general estimate of the level of psychological morbidity in the menopausal population rather

than provide a GHQ equivalent.

Taking a cut-off point of above .43 for depression, 13.6% of the total sample used in the factor analytic study (N = 682) would be classified as cases. These figures compare with 14.9% for women in a Camberwell (London) study, (Bebbington et al, 1981), using the Present State Examination (PSE) which was found to correlate highly with the GHQ (Wing et al, 1977; Newson-Smith & Hirsch, 1979). Following a discussion of such surveys, Bebbington et al (1981) point out that most studies report figures of between 4-8% for men and 8-15% for women. Thus the case percentage may be considered compatible with that expected from other research studies.

Although the 30 item GHQ was selected because items were excluded which may be sensitive to physical illness, false positives have been found using this 30 item questionnaire in women with physical illness or having particular social problems (Finlay-Jones & Murphy, 1979). In this validation study the authors suggested that a higher cut-off point may provide better classification. In a recent study using the 30 item GHQ in postpartum women, Nott & Cutts (1982) also recommended a higher cut-off point in those women who were undergoing specific life changes. The errors made in the current study were mainly false positives which may be taken to support the use of the cut-off point adopted for the new depression scale. A precise parallel between the two questionnaires may be unrealistic in view of the following points. The GHQ was designed to identify disorders of recent onset or acute episodes and may miss long term, chronic cases. The GHQ contains items reflecting sleep problems and concentration difficulties; these formed separate symptom clusters in the current analysis and may be influenced by other factors such as

age.

Finally the GHQ is better at identifying women with depressive disorders then women with other disorders, particularly anxiety, which is borne out in these results. For full discussion of the problems involved in case definition and case identification in community samples see Williams et al (1980) and Tarnopolsky et al (1979).

In summary the questionnaire provided a detailed breakdown of symptom clusters, based on empirical examination. It is consistent over short time intervals and has validity estimates for the depression scale in relation to standardized instruments.

Development of New Measures for use in the Present Study

II. Measures of stereotype, expectation and beliefs

(i) Development of questions and questionnaire

The aim here was to develop a set of questions which would explore women's thoughts, beliefs and expectations about the menopause. Although negative stereotypes are generally held to have an adverse influence upon experience of the menopause (Kaufert, 1982a), specific cognitions such as stereotypes or expectations have rarely been examined empirically as predictors of symptoms, with the exception of Neugarten et al (1963). As well as providing descriptive data about the expectations and attitudes of a sample of British women, the following measures were designed to be examined as predictors of symptom experience and helpseeking behaviour. There are numerous possible cognitions to explore. Since the overall focus of this research is upon the nature and explanation of symptom experience a similar focus was generally adopted in this section.

On the final page of the Women's Health Questionnaire, questions about cognitive factors and the menopause were presented (shown in Appendix 1). These were included at the end to avoid awareness that the menopause was an object of study and to avoid contamination of the responses to symptom questions. The possibility remains that some subjects may answer the last page first but this was felt to be the best practical option.

Table 9

Characteristics of subsamples receiving (i) stereotype and (ii) scale of specific beliefs

		Stereotype Sample	Specific beliefs Sample	Difference
		n=729 (86%)	n=117 (14%)	
	Age	52.30 (5.21)	52.92 (5.09)	ns
Menopausal Status	Pre	16.7%	14.0%	
	Peri	23.9%	20.7%	ns
	Post	59.4%	65.3%	
Socio-Economic Status	Middle class	55.2%	78.1%	chi-square= 20.21 p<.000
	Working class	44.8%	21.9%	
	Employed	66.5%	66.1%	ns
Marital Status	Single	5.9	6.6	
	Married	81.3	82.6	ns
	Divorced/ Separated	8.4	5.8	
	Widowed	4.4	5.0	

Since a number of different types of beliefs were of interest, some questions were asked of the whole study sample (i.e. expectation and experience) and others to a proportion of the study sample (ie. stereotype and specific beliefs). Two forms of the WHQ were used identical in format apart form the final page. The alternative final pages are included in Appendix 1, the first including the stereotype question and the second specific beliefs.

The study sample was that described in the previous section, with sample characteristics shown in Table 2. The whole sample (n=850) was divided so that the first 729 women who received

questionnaires were asked about stereotypes while the remaining 121 women received the questions about specific beliefs. The data on specific beliefs may be best considered to be a pilot study. The two subsamples were compared with regard to basic demographic characteristics and the results are shown in Table 9. The two groups did not differ with respect to age, menopausal status, marital nor employment status but unfortunately they did differ according to socioeconomic status. Socioeconomic status was based on the Classification of Occupation and Coding Index (O.P.C.S., 1970). Categories I, II and III (non-manual) may be taken to refer to middle class occupations and categories III (manual), IV and V to working class occupations. Further details of this classification are outlined in Chapter 9, section (b)(ii) and categories shown in Appendix 2. The stereotype subsample was very similar to the overall sample in socioeconomic status; it was the specific beliefs sample which was unrepresentative being more middle class. Analyses were carried out to assess the impact of socioeconomic status upon specific beliefs. These results are presented in the next chapter under the heading Study 1. In the following sections each cognitive question is discussed in turn.

(a) Menopause Stereotype

Stereotypes about the menopause have, in anthropological studies such as Flint (1974), been generally estimated by social changes or by estimates of general cultural values. For example youth, beauty and wealth may be considered valuable in Western countries. In such studies, the extent to which individuals within a particular culture hold such beliefs has not been examined. Kaufert

(1982b) hypothesized that negative stereotypes may have more impact upon perimenopausal women who already suffer from low self esteem. In the current study stereotype was taken to represent women's beliefs about what women in general experience during the menopause. Responses were elicited to the following question:-

"Please list what changes (if any) you think <u>most</u> women experience at the menopause?"

An open question was used as no clear categories of response were known a priori to be appropriate. The responses to the first 50 questionnaires were content analyzed by the author and could be classified into nine groups representing similar experiences. The categories with examples are shown in Table 10. Each category was scored present or absent for each subject depending on whether an item from that category had been included. If left blank they were scored as missing data. A separate category was used for 'Don't Know' responses.

Twenty further questionnaires were scored by both the author and an independent rater, a research psychologist. There was reasonable overall agreement; total agreement was reached in 15 out of 20 cases. Following discussion the categories were clarified further to avoid ambiguity. For example positive sexual changes or menstrual changes were scored in category 9, similarly items to be scored as somatic or ageing were more clearly defined. The independent rater proceded to score all these data with frequent discussions of problems with the author.

This scoring system allowed for only presence or absence of certain items, without an idea of severity or intensity. As a summary score, which may be taken to reflect the overall extent of changes

believed to occur, the sum of the scores was calculated. Item 9 was scored negatively giving a possible maximum score of 9.

Table 10

Classification of stereotypic responses based on content analysis

Category	Examples
1. Psychological items	No confidence, less able to cope, weepy, nervousness.
2. Vasomotor items	hot flushes, sweating, night sweats.
3. Sexual items	loss of libido, less enjoyment or desire for sex, vaginal dryness.
4. Menstrual items	Menstruation stopping, becoming irregular, heavy periods.
5. Physical items	Feeling generally unwell, tiredness, no energy, headaches, palpitations, breast tenderness, aches and pains, swollen feet.
6. Cognitive items	Poor concentration, mental slowness, confusion, think less clearly, forgetful.
7. Items concerning ageing	Growing old, beginning of old age, start to have wrinkles, sagging skin.
8. Items concerning femininity/ self esteem	loss of attractiveness, desirability, relationship with the partner worse.
9. Positive or neutral items	Relief from pregnancy or menstruation, feel better, you get what you expect, nothing in particular happens, no changes.

(b) Experience of the Menopause

In this and the following section women were offered the opportunity to define their own menopausal status. All women were

asked:

"If you are experiencing or have experienced your menopause, please list what specific changes (if any) occurred at that time"

This question aimed to elicit current or post hoc perceptions and attributions of symptoms or changes to the menopause. Comparison of these responses with symptom ratings, described in the first part of this chapter, might provide estimates of the influence of knowledge of menopausal state. In addition the relationship between stereotyped beliefs and reported experience would be of interest.

The same scoring method as described above was found to be appropriate for this question. A summary score could be calculated as described in the previous section. Following this question those women were also asked:

"Was the menopause better/same/worse than you expected?"

(c) Expectations of the Menopause

All women in the sample were asked:

"If you are still having periods please list what specific changes (if any) you expect to happen to you when you have your menopause".

It was expected that pre, and some perimenopausal women would respond to this question, which asked specifically about personal expectations as opposed to general stereotyped beliefs. The same scoring procedure was adopted as described above for stereotype responses, being scored by an independent rater in consultation with the author. Summary scores were calculated as above.

Table 11

Scale of 10 specific beliefs about the menopause

1. The menopause is an experience that depends on your attitude of mind.

2. Menopause is a disturbing thing, which most women dread.

3. Menopause marks the beginning of old age.

4. It is good to be free from periods/menstruation at the menopause.

5. After the menopause, women are more interested in sex, than before.

6. The menopause is psychologically upsetting.

7. Women enjoy sexual relations less after the menopause.

8. The menopause brings problems with physical health.

9. Men are less interested in their wives after the menopause.

10. Women are pleased they can no longer become pregnant after the menopause.

(d) Specific beliefs

A scale of specific beliefs or attitude scale was developed to examine beliefs about the menopause and to explore the relationships between beliefs. Ten statements were chosen to reflect a range of ideas about the impact of the menopause and are shown in Table 11. Items 3, 4, 6, 8, 9 and 10 were taken from those used by Van Keep (1970) in the International Health Foundation Study of the attitudes of women in six European countries. The wording of items 8 and 9 was modified. Items 5 and 7 were included to assess beliefs about sexual changes in a positive or negative direction. Item 2 was included to tap a global negative reaction to the menopause. The first item was taken from a group of questions used by Sledmere (1983) in an

unpublished study. Her study was carried out on a similar population to that of this study, and she found that women attending a menopause clinic differed from matched non-clinic attenders on this item. Subjects were asked to agree or disagree with each item on the current scale. Some items were phrased positively and others negatively to reduce response bias.

Test-retest reliability was carried out by asking 20 female hospital staff to complete the scale and again repeat this two weeks later. The mean age of this sample was 43.2 years (s.d. 6.5) and they included nurses, receptionists and doctors. Two failed to complete the second questionnaire. Of the remaining 18 there was complete agreement by 15, that is 83.3%. It was the sexual items (5 & 7) that were rated less consistently. Three women responded inconsistently to these items. Two were also inconsistent in rating item 9. The overall scale was considered to be sufficiently reliable across a short time interval.

A factor analysis was carried out to examine the relationships between specific beliefs. This method was chosen to investigate the possible number and types of beliefs included and to provide information which may be used to develop a scoring system.

As discussed above the beliefs scale was included on the final page of the Women's Health Questionnaire (WHQ). One hundred and twenty one women, a subsample of the whole sample, completed a version of the WHQ which included the beliefs scale instead of the question about menopause stereotype. The sample characteristics are shown in Table 10. One hundred and seventeen returned useable questionnaires.

The factor analysis (Principal Components Method with varimax rotation), (Nie et al, 1975), was carried out on the 10 items scored

present or absent. Four factors were selected, with eigenvalues greater than 1, which accounted for 80% of the variance. The rotated factor scores are shown in Table 12. Loadings of .4 and above are presented in italics.

Table 12

Factor analysis of beliefs scale: rotated factor loadings

Attitude items	Factor 1	Factor 2	Factor 3	Factor 4
1	.17	-.24	.22	.11
2	.07	.12	.33	*.46*
3	.00	*.61*	*.41*	-.12
4	*.84*	-.19	-.01	-.01
5	.12	-.28	-.02	.00
6	-.02	.03	*.68*	.22
7	.01	*.77*	-.04	*.41*
8	-.09	.09	*.56*	.01
9	-.12	-.01	.00	.36
10	*.62*	-.04	-.10	-.16

Factor 1 clearly represented relief about ceasing menstruation and the possibility of pregnancy, that is a positive belief. It is interesting that this factor was not negatively correlated with other items suggesting that relief may occur alongside other more negative beliefs. Factor 2 was characterized by beliefs that sex is less enjoyable and that ageing occurs after the menopause. Factor 3 represented beliefs about the psychological and physical impact of the menopause. That the menopause marks the beginning of old age was also included, as was the idea that the menopause is a

disturbing event that most women dread. This factor thus overlapped with Factor 2 (item 3) and overlapped with Factor 4 (item 2). Factor 4 seemed to reflect a more general dread of the menopause including beliefs that sexual and personal relationships may be affected. Item 1 did not load highly on these factors but there were small but negative associations with Factors 2 and 3.

These results suggest that certain positive beliefs about the menopause may be held which are relatively independent of beliefs about the possible negative impact of the menopause. Other beliefs tended to cluster together, that is about age and sexual changes, psychological and physical changes. There was, however, overlap between factors 2, 3 and 4, in that beliefs about age and sexual changes were also associated with beliefs about symptoms and global dread of the menopause.

In view of these findings and in view of the pilot nature of this topic, it was felt that it would be best to consider individual items where possible in the current study. Where a summary score or global attitude would be more appropriate, this could be obtained by summing scores. Agreement with negative items (2, 3, 6, 7, 8, 9) and disagreement with positive or neutral items (1, 4, 5, 10) would receive a score of one point. Scoring in this fashion in this sample gave a mean score for the group of 3.22 (s.d. 2.12) points and range of 0 to 10. The scores were evenly distributed.

(ii) Discussion

Questions have been described which were developed to assess women's stereotyped beliefs, expectations and reported experience of their menopause. In addition a questionnaire of specific beliefs was

piloted. Test-retest reliability of the latter questionnaire and inter-rater agreement on scoring the responses to open questions was found to be high. These cognitive items were developed to be used as possible predictors of menopausal experience and helpseeking behaviour. As well as enabling detailed descriptions of these beliefs, scoring systems were developed so that these variables could be included in statistical analyses in the major studies reported here.

Two methodological points need to be considered. Firstly the subsample completing the beliefs scale differed from the total sample, and the sample completing the stereotype question, in that they were more middle class. This may be because this sample of women all attended the ovarian screening facility in response to a report appearing in a particular newspaper or radio programme. The relationship between specific beliefs and socioeconomic status is examined in Study 1. This problem may not affect examination of beliefs and symptoms within this subpopulation but will need to be noted if this subsample is compared with another sample of women.

Secondly the inclusion of the cognitive section at the end of the WHQ was carried out to avoid contamination of earlier symptom ratings and to avoid awareness of the purpose of the study interfering with symptom reports. This latter aim cannot be guaranteed since women could look at the final page first. Also the symptom questionnaire could interfere with responses to the cognitive items by focussing attention upon emotional and physical symptoms. This effect may be assumed to occur for all subjects, thus not affecting relationships between variables. However the general level of responses to cognitive items may be inflated. On balance it was felt

that it was more important to attempt to avoid knowledge of the purpose of the study than to protect against the type of bias just described. Separate questionnaires could have been sent out but for various reasons this was not considered practical.

The results of the factor analysis of specific beliefs provides some support for Van Keep's (1970) conclusion that relief about the ending of menstruation and pregnancy may be held fairly independently from other negative beliefs. Comparison of the belief scale responses with Van Keep's (1970) survey may provide estimates of the nature of possible attitude change during the past 15 years. Menopausal stereotype is likely to influence a woman's development of personal expectations regarding her own menopause. This may then form a filter through which physiological and other sensations will be interpreted. The cognitive variables developed here should enable examination of the relationship between stereotype and expectation or reported experience of the menopause. Obviously the experience of menopause is likely to influence attitudes and beliefs about menopause generally. The effects of stereotype and expectation upon menopausal experience are therefore to be examined in the prospective study reported in Chapter 10.

CHAPTER 9

Study I. Psychological and somatic experiences of the menopause. Symptom prevalence and predicting individual differences: cross-sectional survey.

This study was designed to answer several questions about women's experience of the menopause. First, do reported experiences of physical and emotional sensations differ in prevalence in women of different menopausal status? (The term symptom is used to refer to reported physical or emotional sensations or changes). Secondly are there parallel changes in other measures of health such as general health ratings, hypochondriacal concern and health related behaviours? If physical or emotional changes do occur how may these changes be best explained? It is of theoretical and clinical interest to clarify which symptoms may be attributable to the menopause as a biological event and which symptoms are more clearly determined by psychosocial factors. Firstly, do life stresses, or other events occurring coincidentally with the menopause, account for possible changes in symptom reports? Secondly, what are the relative contributions of menopausal status and additional psychosocial factors in explaining the variation in symptoms in these women? Finally a description of the nature of beliefs and expectations about the menopause is presented. Questions relating to whether these beliefs may be modified by experience of the menopause, the characteristics of women who hold specific stereotypes and beliefs about the menopause and the extent to which beliefs about the menopause might actually influence

its experience will be addressed. The results will be presented in response to a series of questions as outlined above.

(a) METHOD

A cross-sectional postal survey was carried out to examine the prevalence of symptoms in women aged between 45 and 65 years and to investigate various factors which may be associated with symptom reports, such as menopausal status, age and psychosocial factors.

(i) Subjects

One thousand and ninety women were recruited from a large population of women who had arranged to attend Kings College Hospital for routine ovarian screening. The screening clinic was made available to women aged between 45 and 65 years (inclusive) and served the same purpose as routine breast screening facilities to detect possible cancer. It should be noted that ovarian cancer is very difficult to detect and is generally not associated with symptoms. Ovarian ultrasound scanning was offered at Kings College Hospital in an attempt to improve detection rates and to assess the rates of cancer in this population. These women all had ovaries (i.e. had not undergone oophorectomy or surgical menopause) however a proportion had had a hysterectomy. These women learnt about the screening clinic from newspaper articles or from a radio programme, and they came predominantly from London and South East England. Although they were clearly not menopause clinic attenders and were not attending the hospital because of disease, they may have been more health conscious or have differed from the general population in other

ways such as socioeconomic status. These possibilities are examined in the following sections.

(ii) Materials

All women completed the Women's Health Questionnaire (WHQ) which was described earlier in Chapter 8, and is shown in full in Appendix 1. The WHQ includes questions in the following areas:

I. Demographic Information Here information concerning age, socioeconomic status and employment status was elicited as well as details about number of children, grandchildren and whether children were still at home.

II. General Health Ratings The choice and range of questions in this section was similar to those used in large scale North American studies (Kaufert & Syrotuik, 1981 and McKinlay & McKinlay, 1986). The six questions in this section included a general rating of health (poor/fair/good/very good), a rating of health as compared with others, whether they were currently suffering or had suffered from any physical/mental illness and finally whether they were worried about their future health. These questions, together with the initial statement "We are studying women and their health ...", were also designed to reinforce this as the aim of the study. Two additional questions about marital relationship and stress were included. One question asked women to rate their marital relationship, if they were married, since marital satisfaction may be associated with symptom experience. Another question was included to assess, in a simple manner, the extent to which these women regarded themselves as being currently under stress. They were asked:

Have you been under stress recently? : YES/NO

and if so to briefly state what the stress was. Since it was not practically possible to carry out complex assessments of recent life events, and since this was not the major focus of this research, this question was included to provide an estimate of the types of issues that these women viewed as stressful.

III. Health Behaviour Here questions were asked about cigarette smoking, exercise and weight since these variables have been thought to be associated with symptom reports during the menopause. The numbers of visits to a GP or hospital doctor were also elicited using one month as the time frame. Women were also asked whether they were currently taking medication and to describe what it was. On the final page of the WHQ a question was included to find out the proportion of women who had attended their doctor with symptoms of the menopause.

IV. Hypochondriasis The Pilowsky Hypochondriasis Questionnaire (Pilowsky, 1967) was included, in order to assess whether this sample may have been more health conscious or more hypochondriacal than the general population. This questionnaire is a short-scale, providing a total hypochondriasis score as well as three sub-scale scores based on a factor analysis: bodily preoccupation, disease conviction and disease phobia, and has normative data for hypochondriacal patient and non-patient groups for both sexes (Pilowsky, 1967).

V. Symptom Scale The third and fourth pages comprise the scale of 36 symptoms described previously in Chapter 8. Current symptoms, experienced within the last few days, were rated on 4-point scales. A final question was added to assess coping ability and impact of the symptom:

> "Is it very difficult for you to cope with any of the above symptoms? YES/NO, and if so which ones?

VI. Stereotype, expectation and beliefs about the menopause. The final page of the WHQ focussed on women's attitude to and/or experience of the menopause, and contained questions about menstrual periods, past pre-menstrual problems, hysterectomy and hormone replacement therapy. In addition, several questions were asked about beliefs, expectations and stereotyped views of the menopause. These have been described in the previous chapter and are shown in Appendix I. As noted earlier not all subjects received all the cognitive questions.

Finally women were asked if they would be willing to help in further research and were thanked for their participation.

(iii) Procedure

One thousand and ninety women aged between 45 and 65 years were sent the WHQ by the ovarian screening clinic nurse. This was sent with a screening appointment and a covering letter asking her to complete the WHQ and emphasising that her responses would be kept separately from her hospital notes, would be treated confidentially and would be used only for this study of women's health. The questionnaires were sent out to each consecutive new patient in batches of approximately 200 every two months between August 1982 and June 1984. This was carried out for administrative reasons and also ensured that questionnaires were completed during all seasons, since the weather has been known to influence reports of vasomotor symptoms. The questionnaires were either sent back or brought to the clinic at the patient's screening appointment.

Subjects were classified into pre, peri or postmenopausal groups based on the woman's menstrual history, and not on current

symptomatology. This was carried out by the clinic nurse who was experienced in family planning and gynaecology. Premenopausal women were defined as those who had been menstruating regularly during the preceding 12 months. Perimenopausal women were those who had experienced menstrual irregularity, indicating a change in their cycles, for several cycles but who had menstruated within the previous 12 months. Women were deemed to be postmenopausal if no menstruation had occurred for 12 months.

In presenting the results the term menopausal status is used to refer to the above categories of pre, peri and postmenopausal women. Women having had hysterectomy and those taking oestrogen therapy were excluded from the analysis of the relationships between symptoms and menopausal status since women who have had a hysterectomy are difficult to classify in terms of menopausal status and there is evidence that they may be an atypical group (McKinlay & McKinlay, 1986). Women already taking oestrogen therapy may well have obscured their natural symptom experience.

The development of the symptom scale and cognitive questions have already been discussed in Chapter 8.

(b) RESULTS

The results will be presented here in seven sections. First the sample characteristics of the total sample (n=850) will be described. The general level of symptom prevalence will be outlined in the second section. In this and in the later sections, women who had had a hysterectomy or who were taking hormone replacement therapy were excluded, leaving 682 subjects. In the third section the

relationship between symptoms and menopausal status are examined, taking account of possible age effects. The relationships between menopausal status and general health measures, stress and measures of stereotypes, beliefs and expectations are presented in sections (iv), (v) and (vi) respectively. In the final section demographic and psychosocial factors are considered, in addition to menopausal status, as possible predictors of symptom reports.

(i) Sample characteristics

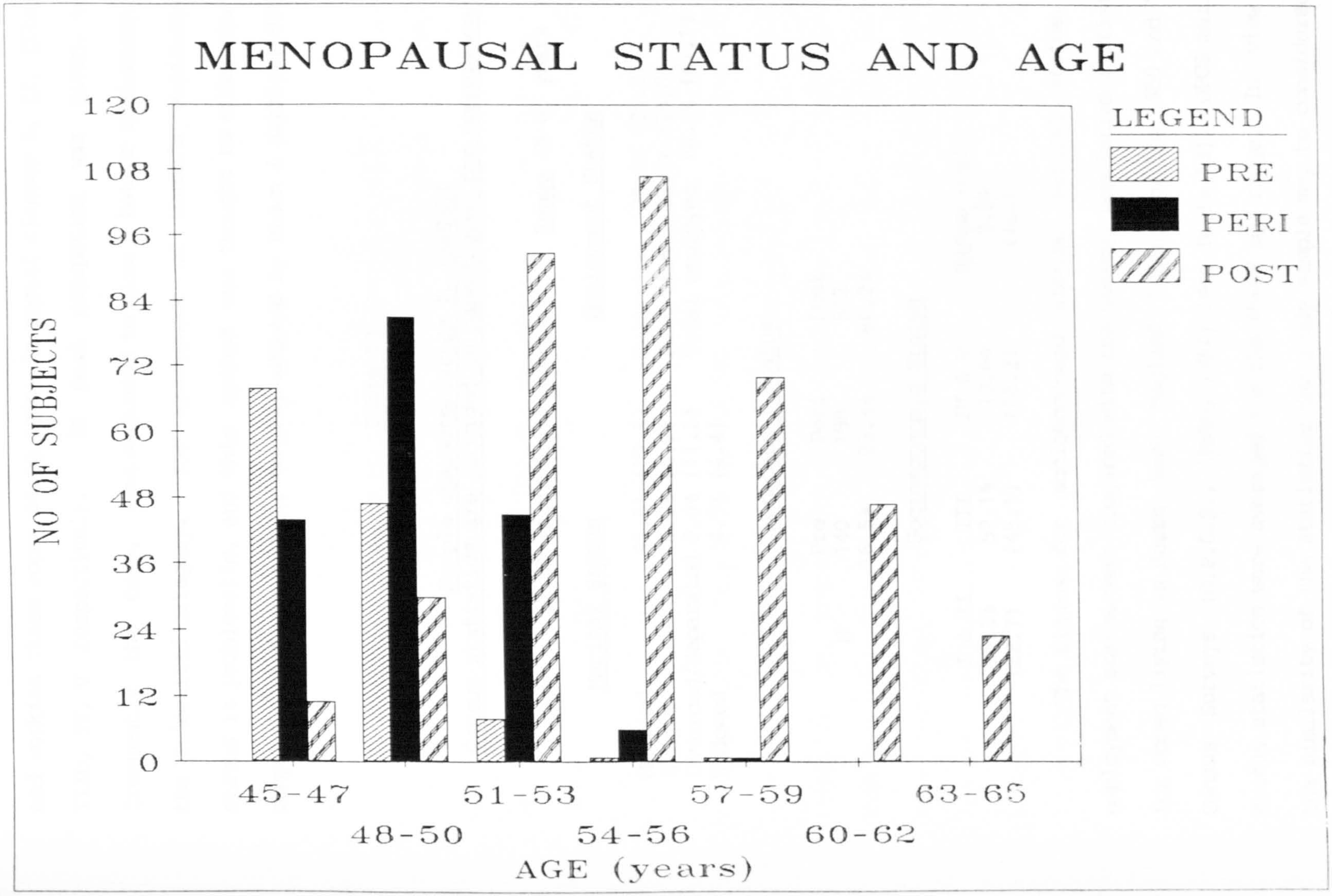
Eight hundred and fifty women returned usable questionnaires, giving a response rate of 78%. Sample characteristics are shown in Table 13. The ages ranged between 45 and 65 years (inclusive), with a mean of 52.3 years (s.d. 4.92). Approximately 82% were married and 66% were employed. Seventeen percent were premenopausal, 23% perimenopausal and 60% postmenopausal. The distribution of the sample by age and menopausal status is shown in Figure 2.

Within the 45 to 55 year age range, all three menopausal groups are represented, whereas the majority of women aged 56-65 years were postmenopausal. Sections of the statistical analysis were therefore performed on the younger age band, which included approximately 70% of the total sample, since this enabled age and menopausal status to be assessed as separate variables and reduced the effect of cohort differences.

Socioeconomic status was assessed on the basis of the Classification of Occupations and Coding Index (O.P.C.S., 1970) by reference to the husbands' occupation for married women and the woman's own occupation, if possible, for unmarried women. Further details of this classification are provided in Appendix 2. In the

Figure 2

Histograms representing the distribution of the sample in terms of menopausal status and age (presented in 3 year age bands).



main analyses the focus will be the distinction between middle class and working class women being those in social classes I, II, IIIa and IIIb, IV, V respectively. If past occupation was given, as was frequently the case, this was used to give a better indication than the Dk/retired category. The assessment of women's socioeconomic status is problematic, and this method was thought to offer the best compromise and was similar to that adopted by Brown & Harris (1978).

Table 13

Sample characteristics I. (n=850)
Census statistics are provided in parentheses for comparison

Age 52.3% (s.d. 4.92) years Range 45-65 years

Marital Status

Married	81.5% (77.5)
Single	6.0% (6.9)
Divorced/Separated	8.0% (11.2)
Widowed	4.5% (4.4)

Employment Status

Full time	28.8% (35.3)
Part time	37.2% (25.8)
Total employed	66.0% (61.1)

Menopausal Status

	Pre	Peri	Post
N	140	198	512
	16.5%	23.3%	60.2%

Socioeconomic Status

I & II	III	IV & V	Dk/retired
25.3%	52.1%	20.6%	2.0%
(22.7)	(45.1)	(16.2)	(16.0)

The figures for socioeconomic status, marital status and employment status were compared with the general population statistics for women living in South East England taken from the 1980 and 1981 Census Surveys (O.P.C.S., 1980, 1981) (see Table 13). OPCS marital status statistics were averaged for the 45-65 age range. In view of the similarity of the statistics the study sample may be considered to

be reasonably similar to the larger population of women living in South East England, in these respects. In fact 72% of the sample lived within this area, based on the addresses provided.

The total sample score on the Pilowsky Hypochondriasis Scale was 2.63 (s.d. 2.53), which is well within the norms provided by Pilowsky (1967) for the non-hypochondriacal range (mean 3.08, s.d. 2.13), suggesting that the study sample was not overly preoccupied with health concerns.

Further details of the sample are shown in Table 14. Included here are the percentages of women having had children, grandchildren and a child still at home, as well as subjective health ratings and reports of use of medical help or medication. Further gynaecological details were asked and two questions elicited ratings of current marriage and possible current stresses.

In general these women's self-ratings suggest a reasonably healthy sample. Approximately 40% had consulted their doctor in the past month but the majority of these attended only once. A similar proportion of women, 38%, had visited a doctor at some time with symptoms felt to be due to the menopause. Approaching half (44.2%) were currently taking medication, including both prescribed and non-prescribed medication, and only 8% were taking hormone replacement therapy.

In the sample 12.2% had undergone hysterectomy and 2.4% had undergone hysterectomy and were taking hormone replacement therapy. These women all had ovaries.

Of those who were currently married the majority described their marriage favourably. However more than half of the sample considered themselves to have been recently under stress. The

Table 14

Sample characteristics II: Further details and general health ratings (n=850)

Children

85% had had children
47.5% currently had a child at home
40.2% were grandparents

General Health Ratings

General health rated: poor or fair by 20%
good or very good by 80%
Health compared to others: better: 26.4%
same: 67.3%
worse: 6.2%
Self rating of current illness: 25.0%
Self rating of past illness: 26.6%
Worries about future health: 36.7%
16.6% reported smoking cigarettes
51.8% reported taking regular exercise
49.3% reported being overweight

Health-related behaviour

Doctors visits:
Non attenders in past month 59.4%
Attended once in past month 26.9%
Attended twice in past month 8.9%
More than twice in past month 4.8%
Attended a doctor with symptoms of the menopause (at any time) 37.8%
Currently taking medication: 44.2%
Currently taking hormone replacement therapy: 8%

Gynaecological details

12.2% had undergone hysterectomy
36.2% were still menstruating
34.3% reported premenstrual tension as having been a problem

Marital Satisfaction

Poor/Fair: 17.1%
Good/Very Good: 66.9%

Recent stress ratings

Currently under stress: 54.8%
Type of stress:

Family: 14.0%	Marriage: 3.6%
Work: 7.2%	Financial: 2.5%
Bereavement: 7.0%	Divorce/separation: 1.5%
Children: 6.2%	Parents: 4.9%
Other: 7.9%	

Responses to symptom questions are presented in terms of

spontaneous responses regarding the nature of the stress were classified into nine categories. Detailed answers were usually given and the categories represented the major or initial subject or focus of the stress. Stress pertaining to general family problems was most common, this category excluded specific problems to do with children or parents or marriage, but included illness of husband or other family members, general family conflicts and responsibilities. Work stress and bereavements were reported equally as the second most common stressors, followed by stress associated with children and stress associated with parents. Marital problems, financial problems and divorce/separation were also reported as stressors but less frequently than other categories (see Table 14).

The prevalence of reported symptoms is discussed in the following section and responses to cognitive items are the subject of section (v).

(ii) Symptom Prevalence

Women who had had a hysterectomy and those taking hormone replacement therapy were excluded (ie. 168 women) since these subgroups may be atypical regarding current experience of and reactions to the menopause. When these groups were excluded 682 women remained. This subsample had been used in an earlier study (see Chapter 8) and details of this sample can be found in Table 3 (page 111). The characteristics of the sample (n=682) and the parent sample (n=850) were very similar (see Tables 13 and Table 3). The characteristics of the women who had had a hysterectomy or were taking hormones are presented later in this section.

derived factor scores (Table 5, p. 114) as well as in terms of individual symptoms (Table 15). Factor scores alone provide limited information. However the standard deviations of scores were generally quite large suggesting a wide range of symptom experience. Using a cut-off point of .43 for the depression scale, 13.6% of this sample were estimated to be 'psychiatric cases'.

Table 15

Percentages of women reporting the presence of individual symptoms (n=682, age range = 45-65 years)

1.	Early morning wakening	46.1
2.	Frightened/panicky feelings	24.6
3.	Miserable and sad	41.2
4.	Anxious out of house	9.1
5.	Loss of interest in things	19.1
6.	Palpitations/butterflies	43.0
7.	Lack of enjoyment	11.1
8.	Life not worth living	16.6
9.	Feel tense, wound up	63.3
10.	Loss of appetite	7.2
11.	Restlessness	41.6
12.	Irritability	45.6
13.	Worry growing old	39.3
14.	Headaches	51.9
15.	Tiredness	70.2
16.	Dizzy spells	45.5
17.	Breast tenderness	36.7
18.	Backache/pains in limbs	27.0
19.	Hot flushes	45.7
20.	Clumsiness	31.8
21.	Lively and excitable	35.9
22.	Abdominal cramps	32.7
23.	Sick/nausea	20.8
24.	Loss sexual interest	53.3
25.	No feelings of well being	17.2
26.	Heavy periods	20.1
27.	Night sweats	41.5
28.	Stomach bloated	66.3
29.	Difficulty getting off to sleep	48.8
30.	Pins/needles in hands/feet	38.0
31.	Dissatisfaction with sexual relationship	15.6
32.	Feel unattractive	36.1
33.	Difficulty in concentration	56.5
34.	Vaginal dryness	33.1
35.	Urinary frequency	46.9
36.	Poor memory	54.2

Forty six percent of women aged between 45 and 65 years reported having hot flushes and 41.5% night sweats. Approximately 40% reported feeling miserable and sad, restless, irritable or experienced palpitations or butterflies in chest or stomach. A smaller proportion, between 10-20% reported loss of appetite, phobic or more clearly depressive feelings. Sleep problems were reported by 45-50% of this sample. While 53% felt that sexual interest had decreased, 85% were still satisfied with their sexual relationships. Vaginal dryness led to sexual discomfort in a third of women who were sexually active. Overall 29% reported having difficulty in coping with the symptoms they experienced.

Women who had had a hysterectomy and who were <u>not</u> taking hormone replacement therapy (n=82) made up 10% of the sample. These women were compared to the larger sample (excluding HRT n=682) in terms of demographic and social characteristics and were found to be similar on variables such as socioeconomic status, marital and employment status, age and number of children. However they were significantly more likely to be postmenopausal ($X^2=19.56$; df=2; $p<.000$), they viewed themselves as having poorer general health ($X^2=7.24$; df=2; $p<.01$) and more past ($X^2=5.31$; df=1; $p<.03$) and current illness ($X^2=9.32$; df=1; $p<.000$). In terms of symptoms they differed from the non-hysterectomized women in reporting significantly more somatic symptoms ($F=3.58$; df=1, 764; $p<.05$) and more sexual changes ($F=3.63$; df=1, 764; $p<.05$) as assessed by factor scores. In terms of individual symptoms they reported more abdominal cramps, greater decline in sexual interest and fewer feelings of well being. These women also reported greater difficulty in coping with their symptoms ($X^2=12.80$; df=1; $p<.0003$).

The 68 women who were taking hormone replacement therapy were also similar to the larger sample in social and demographic characteristics. They differed in reporting more vasomotor symptoms ($F=4.7$; $df=1,508$; $p<.03$) and visits to the doctor ($X2=6.14$; $df=1$; $p<.01$), particularly because of the menopause ($X2=38.90$; $df=1$; $p<.000$). The above findings may be taken to support the exclusion of these subgroups of women since they differ from the total sample in terms of symptom complaint.

(iii) Are there differences in symptom prevalence between pre,peri and postmenopausal women?

In order to examine the effects of menopausal status on symptom report it was necessary to control for the effects of age. Only those women aged between 45-55 years were considered here since all three categories of menopausal status were represented in this age band, as shown in Fig. 2. This subsample (n=474 in total) included 124 premenopausal women, 174 perimenopausal women and 176 postmenopausal women. Although the main analyses were carried out on the younger age band, equivalent results will be reported for the 56-65 year old (n=179) postmenopausal women where appropriate. The following results are presented in two sections covering factor scores and individual items.

Factor Scores: The means and standard deviations of factor scores for the three menopausal categories and results of one-way analyses of variance are presented in Table 16. There was reasonable homogeneity of variance between menopausal subgroups for factor scores. However the frequency distributions of scores on depressed mood were slightly skewed. A logarithmic transformation was carried out and the results

Table 16

Menopausal status and symptom factor scores in the 45-55 year sample. Means, standard deviations and significance levels (N=474). (Results for the older age group are shown in the final column but not included in the analysis).

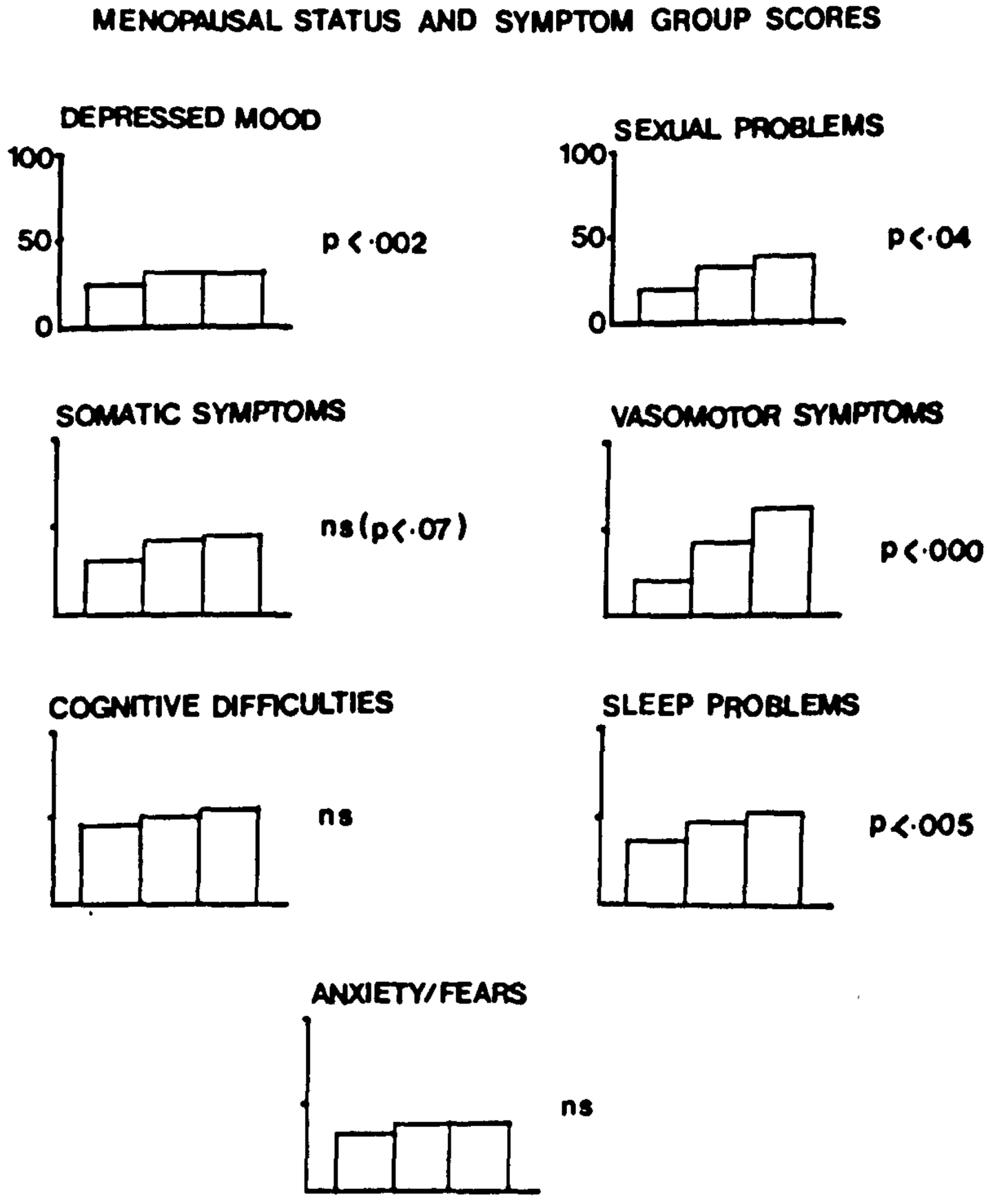
	Menopausal Status					
Symptom Groups	Pre (N=124)	Peri (N=174)	(Post (N=176)	F-ratio df=2,471	Sign. level	56-65 yrs (N=179)
Depressed Mood	.17 (.18)	.25 (.22)	.25 (.26)	6.22	p<.002**	.20 (.22)
Somatic symptoms	.31 (.24)	.39 (.28)	.40 (.24)		ns	.41 (.24)
Concentration/memory	.46 (.37)	.48 (.36)	.51 (.35)		ns	.41 (.31)
Vasomotor symptoms	.18 (.32)	.45 (.44)	.57 (.43)	33.71	p<.0000	.41 (.43)
Anxiety/fears	.31 (.25)	.36 (.30)	.36 (.30)		ns	.34 (.29)
Sexual behaviour*	.21 (.25)	.28 (.32)	.35 (.33)	3.11	p<.04	.38 (.32)
Sleep problems	.35 (.34)	.44 (.37)	.49 (.36)	5.40	p<.004	.48 (.35)

* A number of respondents failed to provide a score on all of these items and the data for this was based on a total N=270 (pre=76; peri=90; post=104), df=2,267.

** F-ratio and significance level following log transformation: F=5.59; df=2,471; p<.003)

Figure 3

Histograms representing the relationship between symptom factor scores and menopausal status (the scores for pre, peri and postmenopausal women are presented as histograms in that order).



shown in Table 16. Only factors which accounted for more than 4% of the variance were considered in this and the following sections (see Chapter 8), thus the 'menstrual' factor, which would inevitably be associated with menopausal status and the 'attractive' factor were excluded. The relationships between symptom prevalence and menopausal status are illustrated in Fig. 3.

There were no significant differences between menopausal categories in reports of somatic symptoms, concentration and memory problems or anxieties and fears. As expected vasomotor symptoms were reported more frequently by peri and postmenopausal women. Problems in sexual functioning and with sleep significantly increased in a stepwise manner from pre to postmenopause.

Depressed mood significantly increased in peri and postmenopausal women compared with premenopausal women. (Following log transformation the skewness was reduced from 1.04 to 0.25 but the significant association with menopausal status remained. In view of these comparable results non-transformed scores were used in the following sections). This finding was confirmed when the numbers of 'cases' were considered. Taking a cut-off point of above .43, 4.7% of premenopausal women were cases, 15.3% of perimenopausal women were cases and 18.3% of postmenopausal women were cases. This difference was statistically significant ($X2=12.76$; $df=2$; $p<.001$).

Before looking at changes in individual symptoms, the effects of age will be examined. Analysis of covariance tests were carried out (using the MANOVA programme, SPSS; Nie & Hull, 1981) so that the effects of menopausal status, age and any interactions could be separately examined. Only two symptom groups were associated with age: vasomotor symptoms and sleep problems. Results are presented in

Table 17

Analysis of covariance: the effects of menopausal status upon symptom reports controlling for age (n=474)

Vasomotor Symptoms

Source of variation	df	Sums of squares	F-ratio	Sign. Level
Age	1,	6.70	39.80	p<.000
Menopause given age	2,	5.51	16.36	p<.000
Interaction	2,	.82	2.46	(p<.08)ns
Error term	468	78.79		

Sleep problems

Source of variation	df	Sums of squares	F-ratio	Sign. Level
(i) Age	1,	1.16	8.89	p<.003
Menopause given age	2,	.48	1.86	ns
Interaction	2,	.31	1.50	ns
Error term	468	61.08	1.50	ns
(ii) Menopause	2,	1.41	5.42	p<:005
Age given menopause	1,	.23	1.76	ns
Interaction	2,	.39	1.50	ns
Error term	468	61.08		

Table 17 for those symptoms which had a significant association with age. None of the interactions were significant. There was an interesting but nonsignificant interaction between age and menopausal status for vasomotor symptoms. Among perimenopausal women, hot flushes and night sweats became more prevalent with age, whereas for postmenopausal women they become rather prevalent with age. The

relationship between vasomotor symptoms and menopausal status remained significant when the effects of age were held constant. Age was also significantly associated with sleep problems. Since menopausal status was also associated with this symptom the effects of each variable were considered in an analysis of variance using each as a covariate in turn (see Table 17). When menopausal status was controlled for, the effects of age became nonsignificant. These results suggest that the effects of both variables were confounded. Individual sleep items were examined in the next section.

In the 56-65 age group the relationships between age and symptom reports were examined using Pearson correlations (SPSS, Nie et al, 1975). Only vasomotor symptoms were associated with age in a negative direction ($r=-.24$; $p<.001$). It was possible to examine age alone, without controlling for menopausal status in this older sample, since these women were of the same menopausal status.

Individual Items: Next, individual symptoms were examined to determine which contributed to the significant associations of symptom factor scores and menopausal status. The percentages of pre, peri and postmenopausal women reporting the presence of each symptom are shown in Table 18. Chi-square tests (two by three tables) were used to estimate the significance of group differences. "Not enjoying things as I used to" (7) and "having no feelings of well being" (25) were the only items in the depressed mood factor to increase significantly in peri and postmenopausal women. These symptoms were reported by a small proportion of women; approximately 5% of premenopausal women and between 10-20% of women during peri and postmenopause. Irritability (12), although within the depressed mood factor group, had a different relationship with menopausal status. Perimenopausal women were more

Table 13

Percentages of pre, peri and postmenopausal women reporting the presence of individual symptoms (N = 474) (Results for the older age group (N = 179) are shown in the final column but not included in the chi-square analysis)

	Menopausal Status			(df=2)		
	Pre	Peri	Post	Chi-squ.	Sign Level	Post(56-65 yrs
1. Early morning wakening	37.9	42.5	44.9		ns	53.6
2. Frightened/panicky feelings	21.8	24.7	28.4		ns	22.3
3. Miserable and sad	38.7	47.7	46.6		ns	31.8
4. Anxious out of house	4.0	9.8	10.8		ns	10.1
5. Loss of interest in things	14.5	19.5	22.2		ns	18.4
6. Palpitations/ butterflies	40.3	43.7	42.0		ns	44.7
7. Lack of enjoyment	4.0	10.3	16.5	11.64	p<.003	11.7
8. Life not worth living	12.1	18.4	18.2		ns	16.2
9. Feel tense, wound up	61.3	68.4	63.1		ns	59.2
10. Loss of appetite	5.6	5.7	10.2		ns	7.3
11. Restlessness	38.7	42.5	46.6		ns	36.3
12. Irritability	39.5	59.2	44.3	13.20	p<.001	36.9
13. Worry growing old	39.5	42.5	33.5		ns	41.3
14. Headaches	46.8	51.7	56.3		ns	50.8
15. Tiredness	69.4	69.5	73.3		ns	68.7
16. Dizzy spells	21.0	26.4	22.7		ns	46.4
17. Breast tenderness	57.3	55.7	22.2	52.72	p<.000	19.2
18. Backache/pains in limbs	19.4	28.2	29.0		ns	29.5
19. Hot flushes	15.3	46.6	63.1	67.60	p<.000	46.4
20. Clumsiness	28.2	38.5	29.0		ns	29.1
21. Lively and excitable	37.1	39.7	30.7		ns	37.4
22. Abdominal cramps	40.3	47.1	20.5	28.95	p<.000	27.4
23. Sickness/nausea	18.5	24.7	14.2	6.27	p<.04	24.6
24. Loss sexual interest	38.7	53.4	58.5	11.86	p<.002	60.1
25. No feelings of well being	5.6	17.2	23.3	16.60	p<.000	19.0
26. Heavy periods	42.7	44.8	0.0	103.84	p<.000	0
27. Night sweats	21.8	45.4	52.8	30.14	p<.000	37.4
28. Stomach bloated	73.4	74.7	61.9	7.88	p<.01	58.7
29. Difficulty getting of to sleep	29.8	44.3	56.8	21.47	p<.000	55.4
30. Pins/needles in hands/feet	35.5	36.8	37.5		ns	40.8
31. Dissatisfaction with sexual relationship	18.7	18.3	16.4		ns	21.8
32. Feel unattractive	28.6	31.8	45.4	5.83	p<.05	46.2
33. Difficulty in concentration	55.6	55.7	58.8		ns	41.5
34. Vaginal dryness	25.0	26.2	44.8	6.86	p<.03	55.9
35. Urinary frequency	36.5	46.6	41.2		ns	52.8
36. Poor memory	55.6	47.7	62.9		ns	55.7

likely to report irritability than those at pre or postmenopause. Thus two types of mood change may contribute to the increase in depression in women at different stages of the menopause.

The increase in sleep problems from pre to postmenopause was accounted for by difficulty in getting off to sleep rather than early morning wakening. The individual data for sexual functioning provided interesting results. Sexual interest was reported to significantly decrease in peri and postmenopausal women. Vaginal dryness, as might be expected, became significantly more common in postmenopausal women. Approximately 70% of the sample reported being sexually active (ie. completed items 31 and 34), however there were no differences between women of differing menopausal status. Similarly women's overall satisfaction with their sexual relationships (31) was unaffected by menopausal status; most women reported being satisfied (84%). Fewer women were sexually active in the older age range (56-65 years).

Both vasomotor symptoms - hot flushes (19) and night sweats (27) - consistently increased at peri and postmenopause. These symptoms were experienced by approximately 55% of peri and postmenopausal women compared with 15% of those who were not yet menopausal. Forty six percent of the 56-65 year olds also experienced vasomotor symptoms. Women were additionally asked whether they found difficulty coping with any of the symptoms reported. There was a significant difference between menopausal groups with 37% of perimenopausal women reporting such difficulty compared with 20% of pre and 28% of postmenopausal women ($X2=5.64$; $df=2$; $p<.05$).

A linear logistic model was fitted (Harrel, 1983; Cox, 1970) to examine the effects of menopausal status, age and any interactions for certain individual symptoms. This method was used since it is appropriate for binary (0/1) data and is based on chi-square statistics. The results for the individual item - difficulty getting off to sleep - are shown in Table 19. This item was examined as it accounted for the significant increase in sleep problems as assessed by factor scores. Difficulty in getting off to sleep (29) was associated with both age and menopausal status. When menopausal status was considered, controlling for age effects, the significant association remained. However the effects of age were reduced ($p<.000$ to $p< .05$) when menopausal status was controlled for. Thus the effects of menopausal status appeared stronger than the effects of age with regard to difficulty in getting off to sleep.

Table 19

The effects of age and menopausal status upon sleep problems: linear logistic model

Difficulty in getting off to sleep

Model	df	chi-square	Sign. Level
(a) Age	1	18.34	$p<.000$
(b) Menopause	2	21.86	$p<.000$
(c) Age & Menopause	3	25.50	$p<.000$
Conditional effects			
(c) - (a) Menopause controlling for age	2	7.16	$p<.000$
(c) - (b) age controlling for menopause	1	3.74	$p<.05$

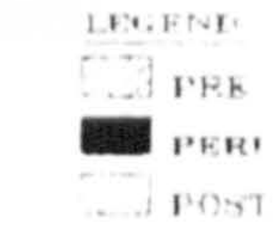
In order to illustrate the pattern of symptom reports and menopausal status across the full age range, several graphs are included in Figure 4 for those symptoms shown to change with menopausal status. Presenting the data in this way shows that it is the eleven younger postmenopausal women, aged between 45 and 47 years who appear to experience more vasomotor, psychological and sexual symptoms. The difference in symptom reporting between these and slightly older postmenopausal women (aged 48-50 years, (n=30) reached significance only for reports of vasomotor symptoms (two tailed t-test: $t=2.18$; $df=39$; $p<.03$). Thus timing of the menopause may be of considerable importance.

In summary as expected vasomotor symptoms and vaginal dryness were associated with menopausal status. Depressed mood, but not anxiety, increased in peri and postmenopausal women compared to those who were premenopausal. Reduced enjoyment in things and reduced feelings of well being contributed to this effect. Irritability increased, particularly in perimenopausal women. These symptoms may therefore have different underlying mechanisms. In addition sexual interest appeared to be affected adversely by the menopause. Sleep problems also increased in peri and postmenopausal women. Although sleep problems were also associated with age, the effects of menopausal status appeared to be somewhat greater when individual items were examined. Subjective reports of problems with concentration and memory did not vary with menopausal status and did not show the expected association with age.

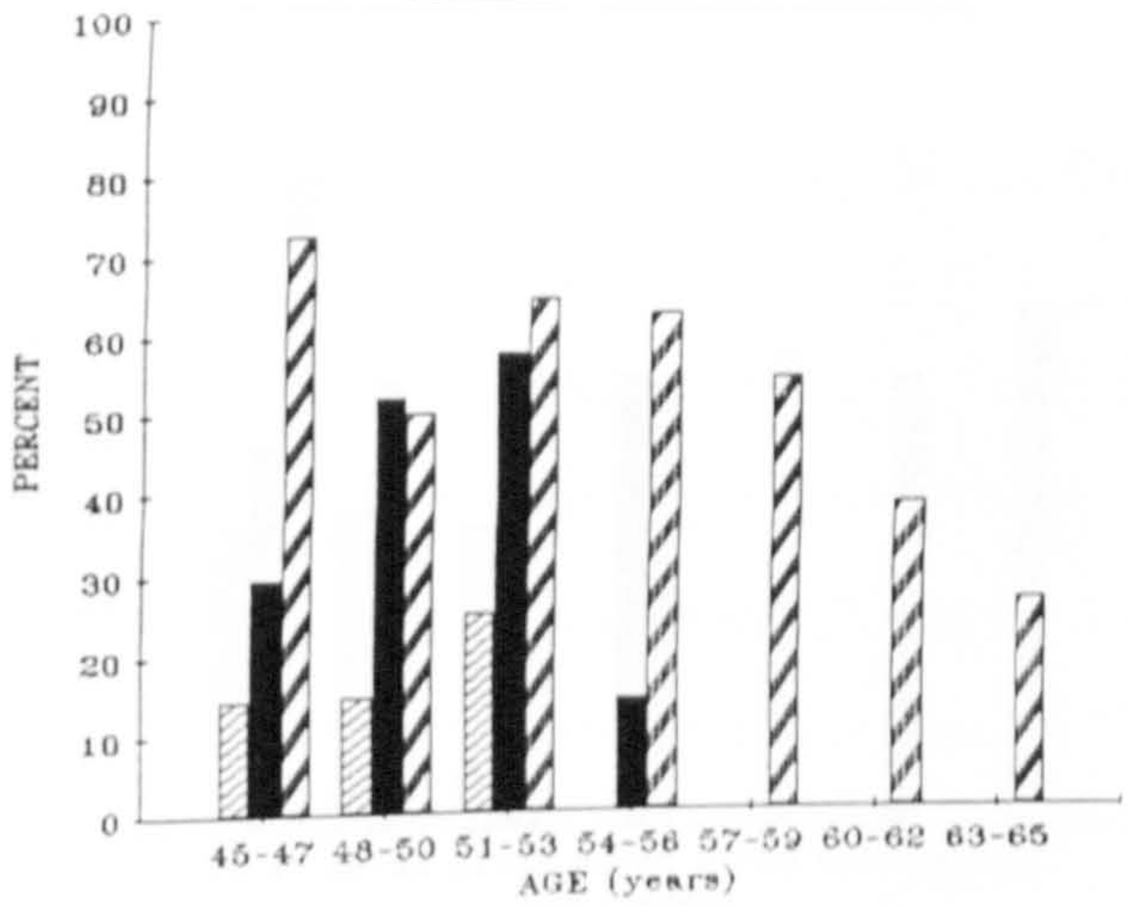
In general the effects of the menopause were stronger than age effects. Women having an early menopause reported more symptoms and perimenopausal women reported greater difficulty in coping with

Figure 4

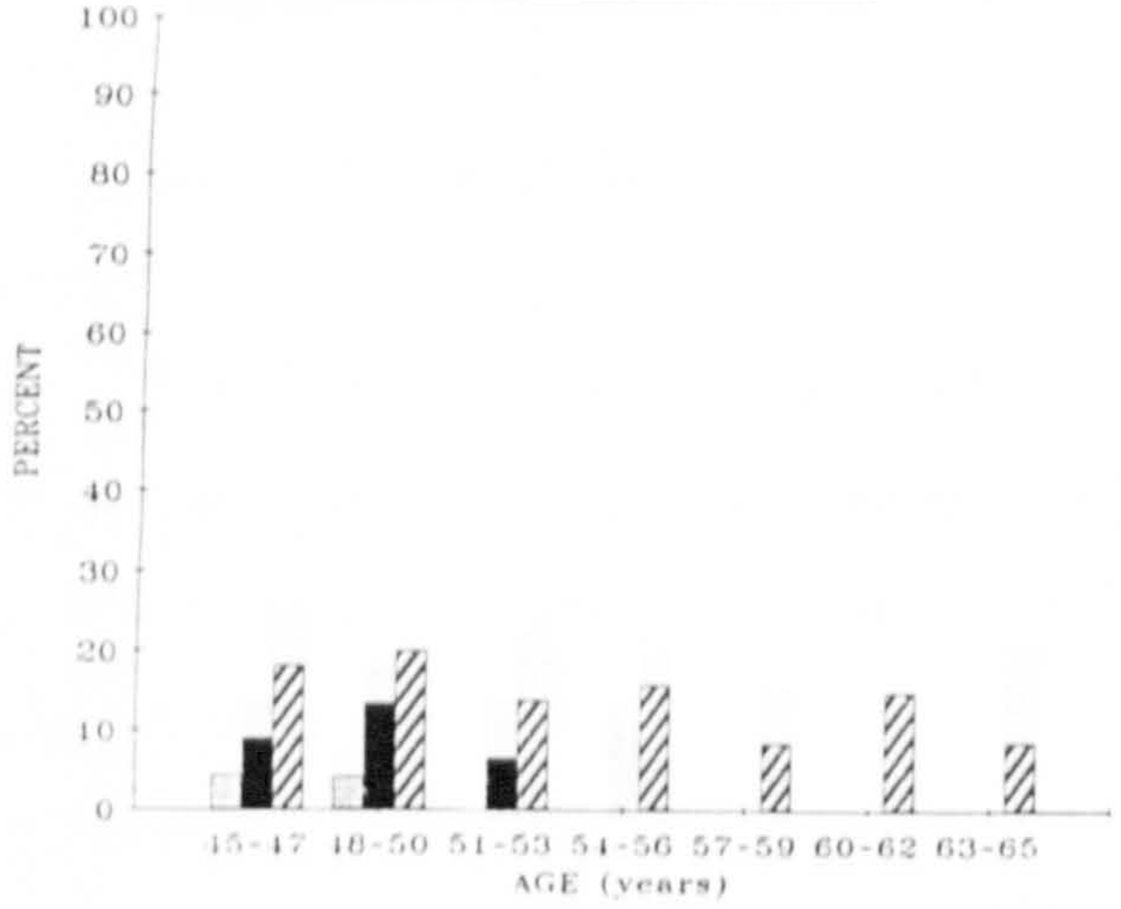
Histograms representing the percentages of women reporting symptoms in terms of menopausal status and age (presented in 3 year age bands).



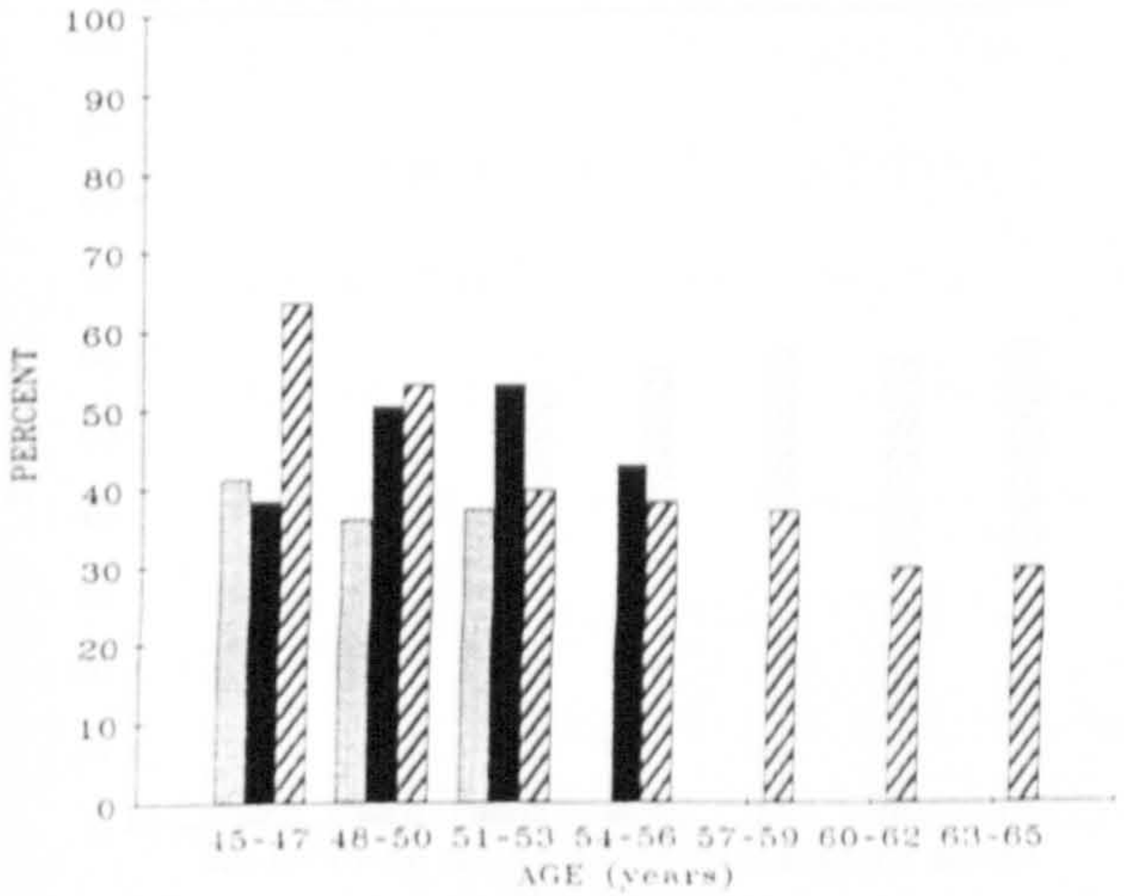
HOT FLUSHES



NOT ENJOY THINGS



MISERABLE AND SAD



IRRITABLE

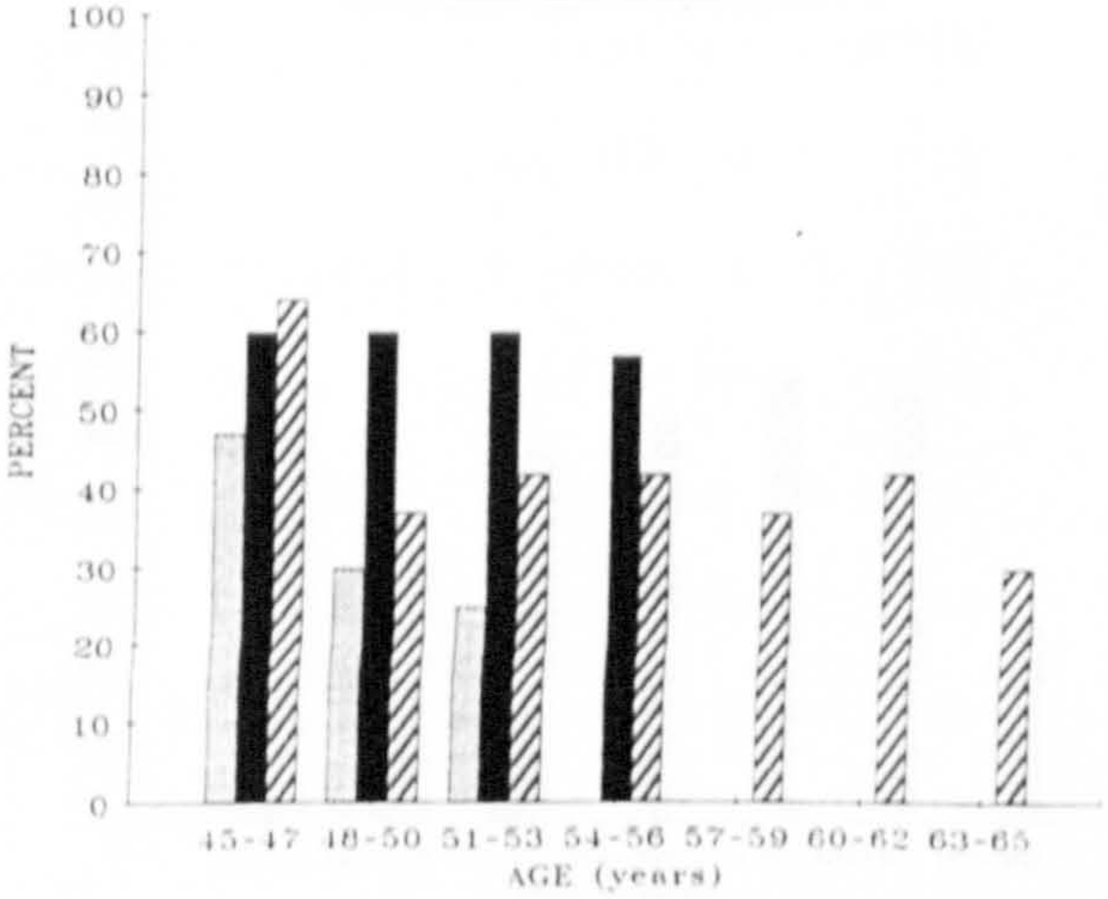
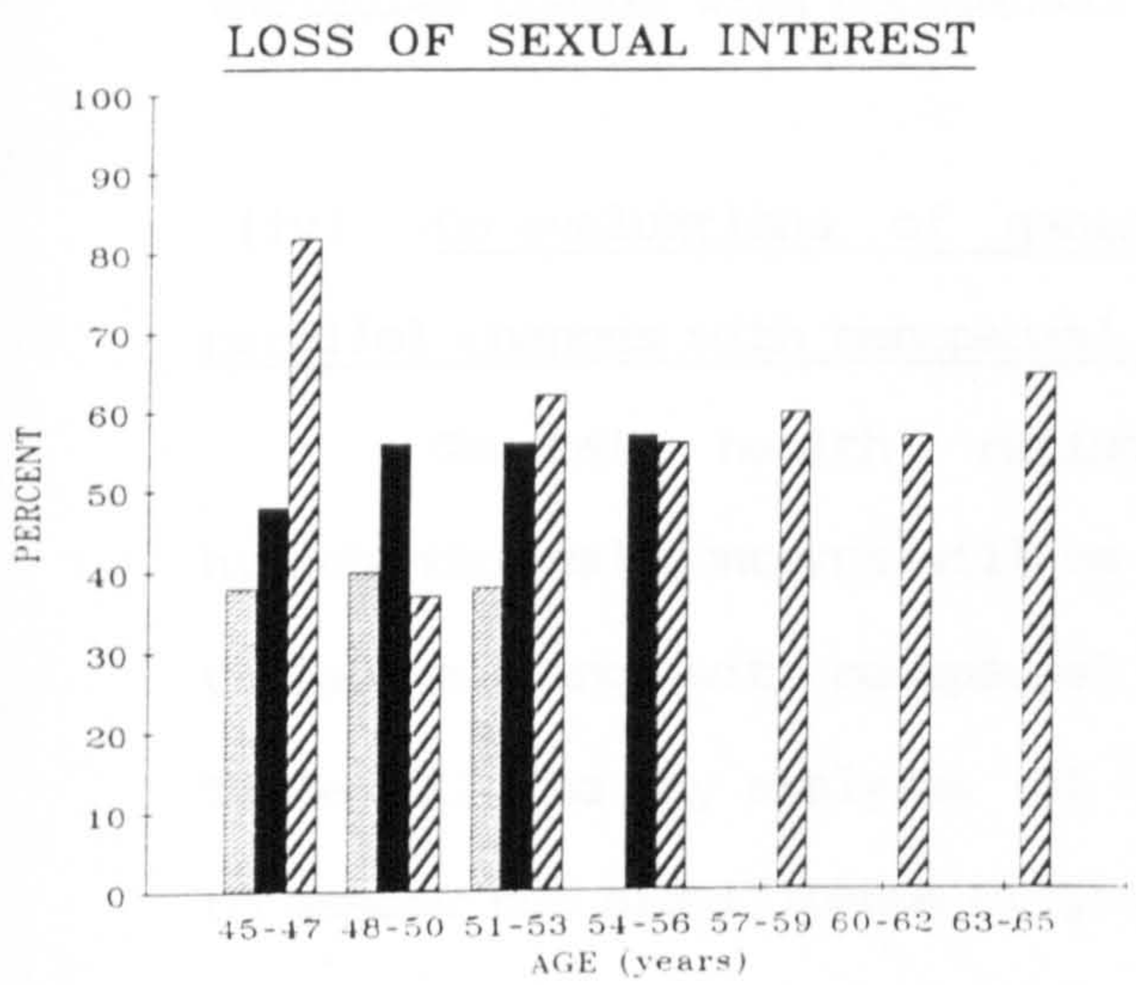
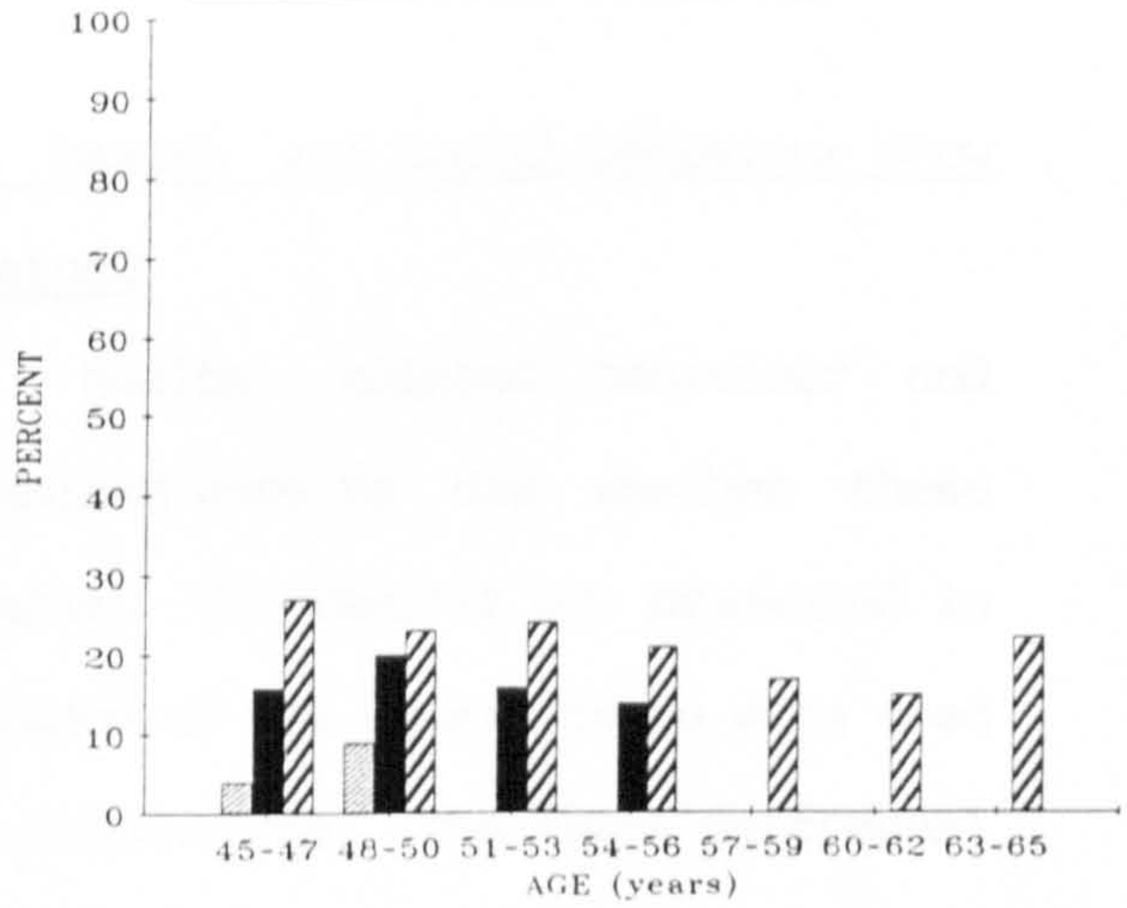
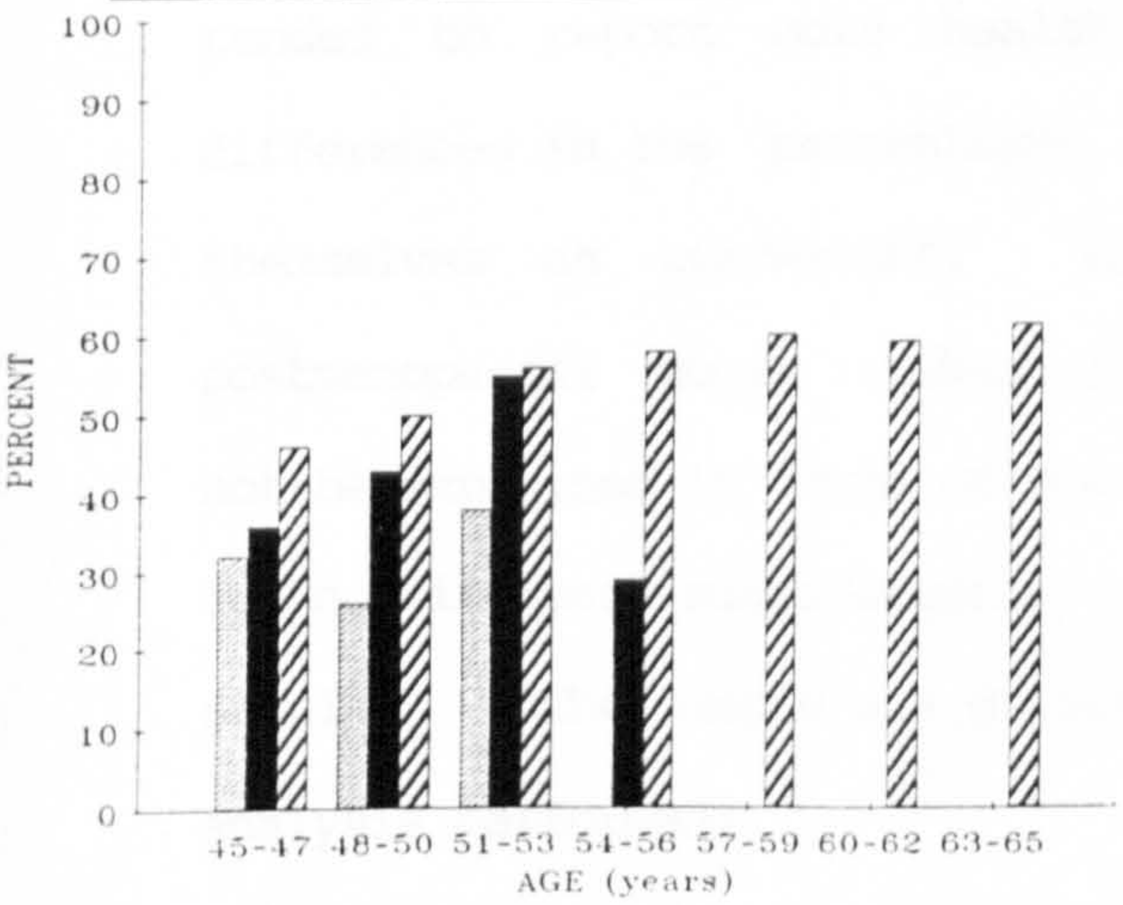


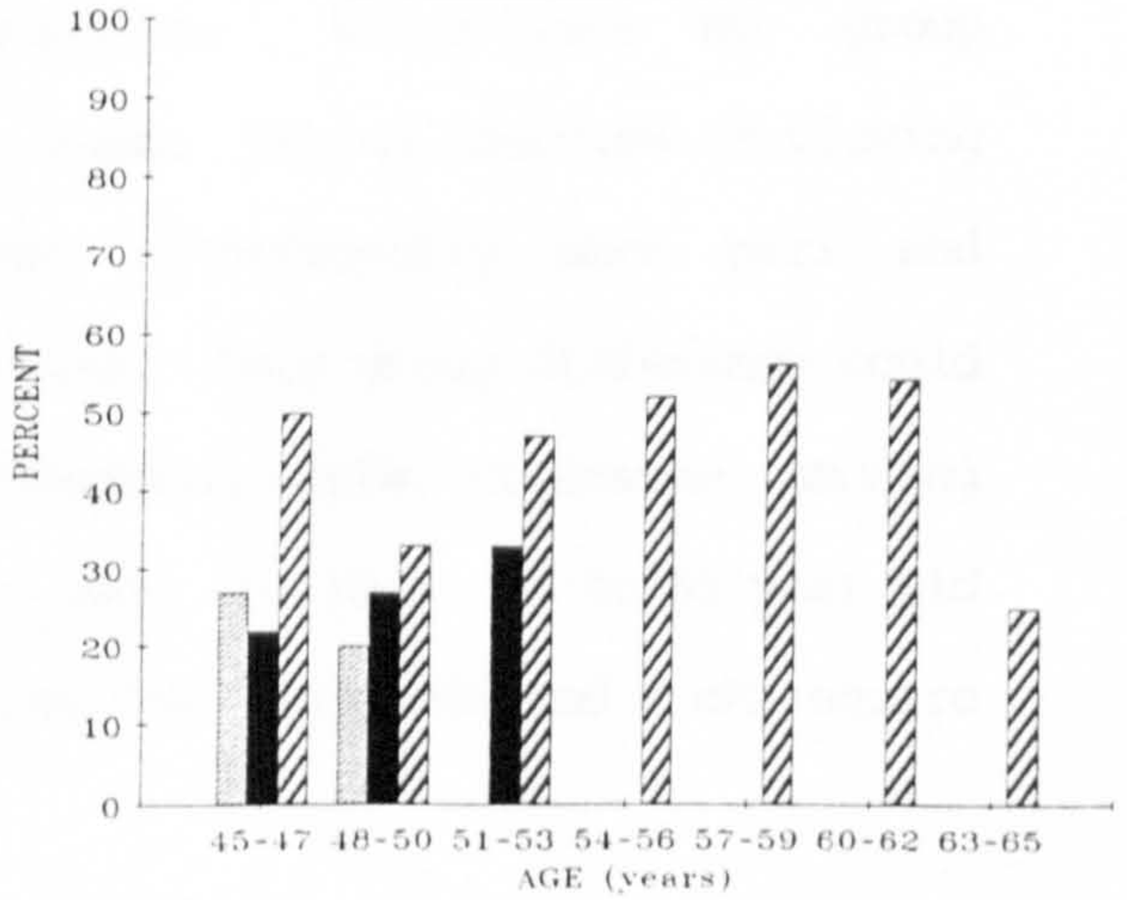
Figure 4 (continued)

Histograms representing the percentages of women reporting symptoms in terms of menopausal status and age (presented in 3 year age bands).









symptoms. The importance of menopausal status as a predictor of symptoms in relation to other background factors, such as socioeconomic status and children at home, will be considered in section (vi). In the following section the extent to which other variables change with menopausal status will be examined.

(iv) Do evaluations of general health and health behaviour show parallel changes with menopausal status?

General health ratings, health related behaviour and hypochondriacal concerns will be examined here to see whether these variables change with menopausal status. The results are presented in Table 20. One way analyses of variance or chi-square tests were used to assess the significance of group differences. The three menopausal groups differed in mean ages as expected. There were no significant differences between menopausal groups with respect to self ratings of their general health, their reports of past or current illness or in terms of worries about future health. The older postmenopausal women tended to report more health problems. There were no group differences in the percentages of women taking exercise or viewing themselves as overweight. However significantly more peri and postmenopausal women smoked cigarettes. This group difference could not be explained in terms of age differences since cigarette smoking did not increase significantly with age in this 45 to 55 year old sample. (The sample was divided into two age bands and a chi-square analysis performed).

The extent of hypochondriacal concern in these women was assessed using the Pilowsky hypochondriasis scale and the results are shown in Table 20. There was a significant difference between

Table 20

General health characteristics of pre, peri and postmenopausal women (N=474) (Data for the older postmenopausal women are presented but not included in the statistical analysis)

N	Pre (N=124)	Peri (N=174)	Post (N=176)	Sign. Level	Older Post (N=179)
Mean Age (s.d.)	47.54 (1.99)	49.16 (2.19)	51.47 (2.32)	F=170.63; df=2,471; p<.000	58.45 (2.81)
General Health ratings					
General health: poor/fair	15.5	17.5	16.2	ns	23.6
Health worse than others	3.9	5.8	4.7	ns	8.6 %
Current illness	16.3	21.6	20.9 %	ns	30.9
Past illness	21.7	25.3	22.5	ns	29.1
Future health worries	31.8	36.8	31.4	ns	34.7
Suffered from PMT	38.0	42.6	31.4	ns	37.3
Health related behaviour					
Cigarette smokers	9.3	20.5	22.5	X^2=9.82; df=2; p<.007	12.3
Take regular exercise	58.9	53.7	47.6	ns	52.7 %
Overweight	45.7	48.4	48.7 %	ns	47.8
Visited doctor in past month	43.5	37.5	33.3	ns	46.4
Currently taking medication	41.9	37.9	39.3	ns	53.2
Attended doctor for menopause (at any time)	4.8	40.4	54.8	X^2=46.63; df=2; p<.000	42.1
Hypochondriasis					
Bodily preoccupation	.83 (1.02)	1.17 (1.02)	.88 (.97)	F=7.22; df=2; p<.0008	1.10 (1.04)
Disease phobia	.92 (1.01)	.93 (.94)	.67 (.80)	F=3.36; df=2; p<.03	.81 (.94)
Disease conviction	.20 (.52)	.24 (.54)	.16 (.44)	ns	.25 (.51)
Total score	2.58 (2.78)	2.91 (2.50)	2.10 (2.32)	F=4.73; df=2; p<.009	2.74 (2.54)

menopausal groups in total hypochondriasis scores, perimenopausal women scoring significantly higher than postmenopausal women. This difference may be explained by the higher level of bodily preoccupation reported by perimenopausal women. Postmenopausal women obtained lower scores on disease phobia than pre and perimenopausal groups and there were no differences in disease conviction. Thus although women's perception of their general health did not appear to change with menopausal status, perimenopausal women appear to be more conscious of bodily changes and possible disease.

Despite the symptom changes reported in the previous section peri and postmenopausal women were not more likely to visit their doctors or take medication. In fact premenopausal women visited their doctors to a greater degree than did peri and postmenopausal women in the 45-55 age band. When asked retrospectively about attending their doctor for symptoms of the menopause, more peri and postmenopausal women reported having done so compared with those not yet menopausal.

Since women taking hormone replacement therapy were excluded from these analyses, this variable was not included here. The characteristics of women seeking medical help will be examined in Chapter 12.

(v) Do pre, peri and postmenopausal women report differential levels of life stress or other coincidental changes?

Here stressors or other coincidental life changes were examined to find out whether the increased prevalence of psychological experiences in peri and postmenopausal women could be explained by independent events, which may have a temporal association with menopausal status.

Table 21

Demographic and psychosocial factors: assessment of possible changes with menopausal status (N=174) (Data for the older postmenopausal women are provided but not included in the statistical analysis)

	Menopausal Status				
N	Pre (N=124)	Peri (N=174)	Post (N=176)	Sign. Level	Older Post (N=179)
Mean Age	47.54 (1.99)	49.16 (2.19)	51.47 (2.32)	F=170.63; df=2,471; p<.000	58.45 (2.81)
Employment Status					
Currently employed	66.4	70.2	63.6	ns	55.0
Children and marriage					
Having had children	85.3	82.6	88.0	ns	85.9
Child still at home	68.2	57.9	49.7	X^2=10.78; df=2; p<.004	25.5 %
Grandchildren	21.7	29.5	40.8	X^2=13.73; df=2; p<.001	59.5
Marriage rated poor/fair	14.3	24.4	16.7	ns	25.5
Recent Stress					
Under stress	50	56.8	55.1	ns	52.3 %
Type: Family	10.6	14.7	15.0		14.1
Work	10.6	9.5	7.5		3.9
Bereavement	1.5	4.2	8.4		7.0
Children	10.6	5.3	5.6 %		4.7
Parents	1.5	1.1	8.4		4.7
Marriage	3.0	5.3	2.8		3.9
Financial	0	4.2	0.9		3.9
Divorce/Separation	1.5	2.1	2.8		0.8
Other	10.6	10.6	3.7		9.4

Possible differences between pre, peri and postmenopausal women with regard to employment status, numbers of children at home, marital satisfaction and current stress ratings are shown in Table 21. While measures of marital satisfaction and stress cannot be considered as independent of symptom state the nature of these subjective responses is of interest.

The effects of age differences upon symptom reports have already been discussed. There were no significant group differences with regard to marital status or socioeconomic status. Similarly pre, peri and postmenopausal women did not differ in numbers of children nor employment status. However older menopausal women were less likely to be employed outside the home. Significantly more pre and perimenopausal women had a child still at home and more postmenopausal women had grandchildren. These effects may be explained by the age differences of the three groups.

There were no significant group differences in ratings of marital satisfaction or recent stress. The menopause does not appear to be necessarily associated with particular types of stress. The major stressors reported are also shown in Table 21. Although the overall level of reported stress did not differ between groups, there were certain differences in the nature of stressors for these women. Premenopausal women were more concerned with family, work and problems to do with their children. For perimenopausal women, family and work were important but problems with children less so. Problems associated with parents and bereavements became increasingly important for postmenopausal women. The number of bereavements reported increased stepwise across menopausal stages. Thus, although the overall level of stress was the same across groups, the nature of the

stress, such as the increase in bereavements, may be relevant in the explanation of symptoms. Thus possibly coincidentally occurring events may be bereavements in peri and postmenopausal women and having a child still at home for pre and perimenopausal women. These variables may be expected to be age related rather than specifically associated with menopausal status.

(vi) Stereotypes, expectations and beliefs about the menopause

The development of questions eliciting stereotyped views, personal expectations and experience of the menopause and a questionnaire of 10 specific beliefs were described in Chapter 8. General findings will be presented first followed by an examination of possible changes in these variables with menopausal status. Finally the characteristics of women who held certain stereotypes, expectations and beliefs will be described. In each section the stereotyped beliefs and expectations are described first, followed by descriptions of specific beliefs, since these results were drawn from different subsamples of women. Concurrent or retrospective descriptions of experiences of the menopause were included, where relevant, for comparison.

(a) The nature of stereotypes, expectations and beliefs

The percentages of women reporting certain types of symptoms or experiences in response to questions designed to elicit stereotyped responses, expectations and reported experience of the menopause, are shown in Table 22. These results refer to the whole sample (age range 45-65 years). The numbers of subjects completing each question varied in that all subjects, excluding 121 who completed the attitude scale,

completed the stereotype question. Expectation and experience items required subjects to define their own menopausal status; for example not yet having experienced the menopause, or experiencing or having experienced the menopause. A few subjects completed both sections.

Table 22

Percentages of women reporting experiences or symptoms in response to questions about stereotype, experience or expectation of the menopause

(Age range 45-65 years).

	Stereotype	Expectation	Experience
	n=729	n=192	n=556
1. Psychological	57.9	22.7	36.2
2. Vasomotor	69.8	35.4	50.9
3. Sexual	9.6	3.1	8.6
4. Menstrual	22.7	43.8	27.9
5. Physical	47.2 %	28.1 %	52.5 %
6. Cognitive	5.2	3.1	7.7
7. Ageing	2.1	2.6	2.2
8. Selfesteem/femininity	2.1	3.1	1.8
9. Positive/neutral	2.1	30.4	10.1
10. Sleep	3.2	1.6	5.6

The stereotyped views were predominantly that most women, or women in general, experienced psychological, vasomotor and physical symptoms during the menopause. Seventy percent believed that vasomotor symptoms occurred, 58% that psychological symptoms occurred and 47% believed that most women experienced physical symptoms during the menopause. Other categories were used by small proportions of women. Only 23% mentioned menstrual changes which are central to most accepted definitions of the menopause and only 2% mentioned positive or neutral aspects of the experience. In contrast womens' personal expectations of the menopause were generally more positive, 30%

expected positive or neutral aspects. Menstrual changes were expected to a greater extent than vasomotor, physical or psychological changes.

For psychological, vasomotor and menstrual symptoms, reported experience of the menopause fell between expectations and the more symptomatic stereotyped views. Here 10% of women spontaneously reported positive or neutral aspects of the menopause. Only for reports of physical symptoms was personal experience considered as being more symptomatic than the experience of most women. The three groups of beliefs are compared in Figure 5 in the form of histograms, for the more commonly reported symptoms.

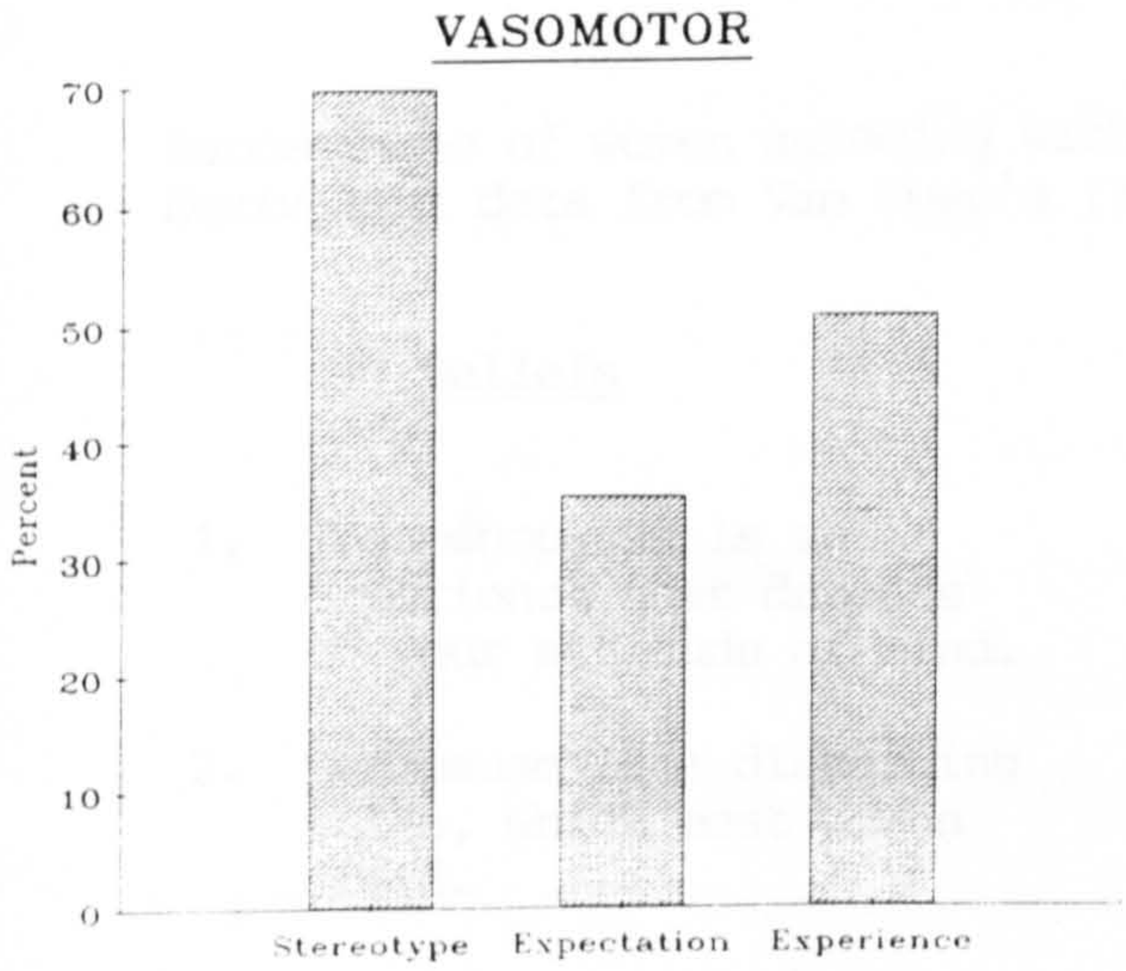
There was a clear difference between personal beliefs about menopause and beliefs about the menopause for women in general, the former being described in more positive terms. Reported experience of the menopause was made concurrently or retrospectively and may therefore tap the extent to which these women attribute symptoms to the menopause.

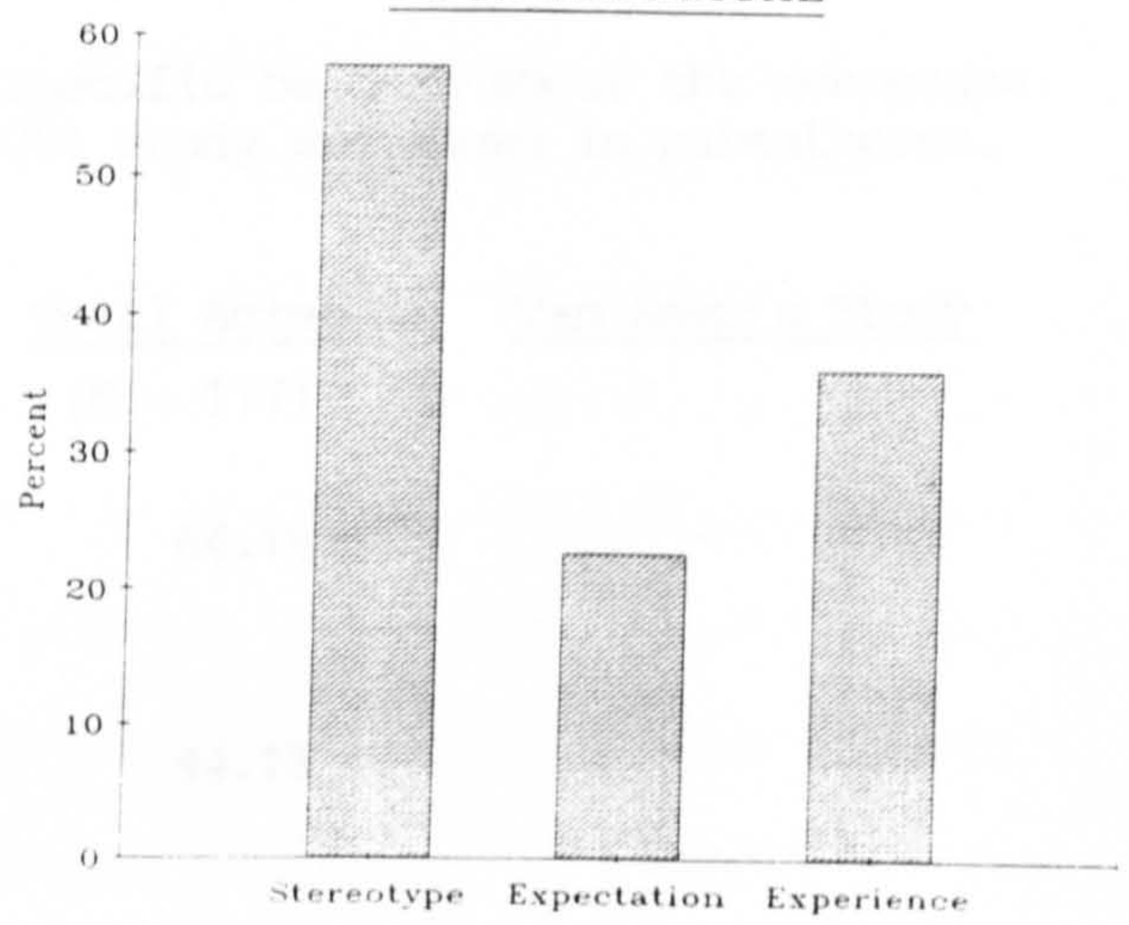
Summary scores were calculated as described in Chapter 8 and used in Pearson correlations to examine the relationship between stereotype and expectation, and stereotype and experience. Stereotype was associated with reported experience ($r=.38$; $p<.000$) and with expectation ($r=.40$; $p<.000$). The correlations were significant but suggest a degree of independence between the two sets of variables.

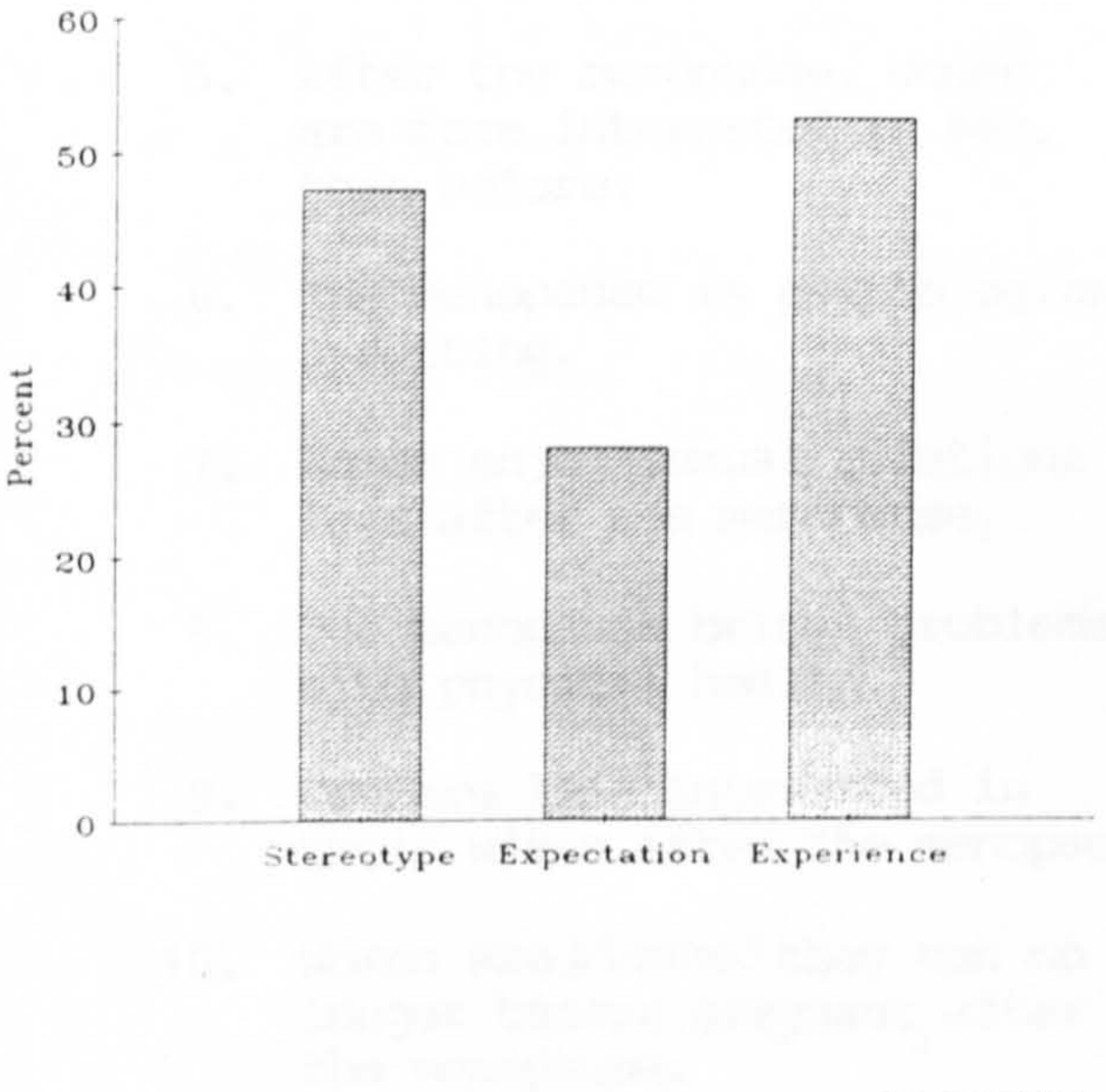
The attitude scale comprising 10 specific beliefs was outlined in Chapter 8 and was completed by a sample of 121 women. The percentages of women agreeing with the statements are shown in Table 23. Four subjects did not complete the scale leaving 117 in the sample. A large proportion of the sample (80-85%) held positive beliefs, being pleased to be free from possible pregnancy and

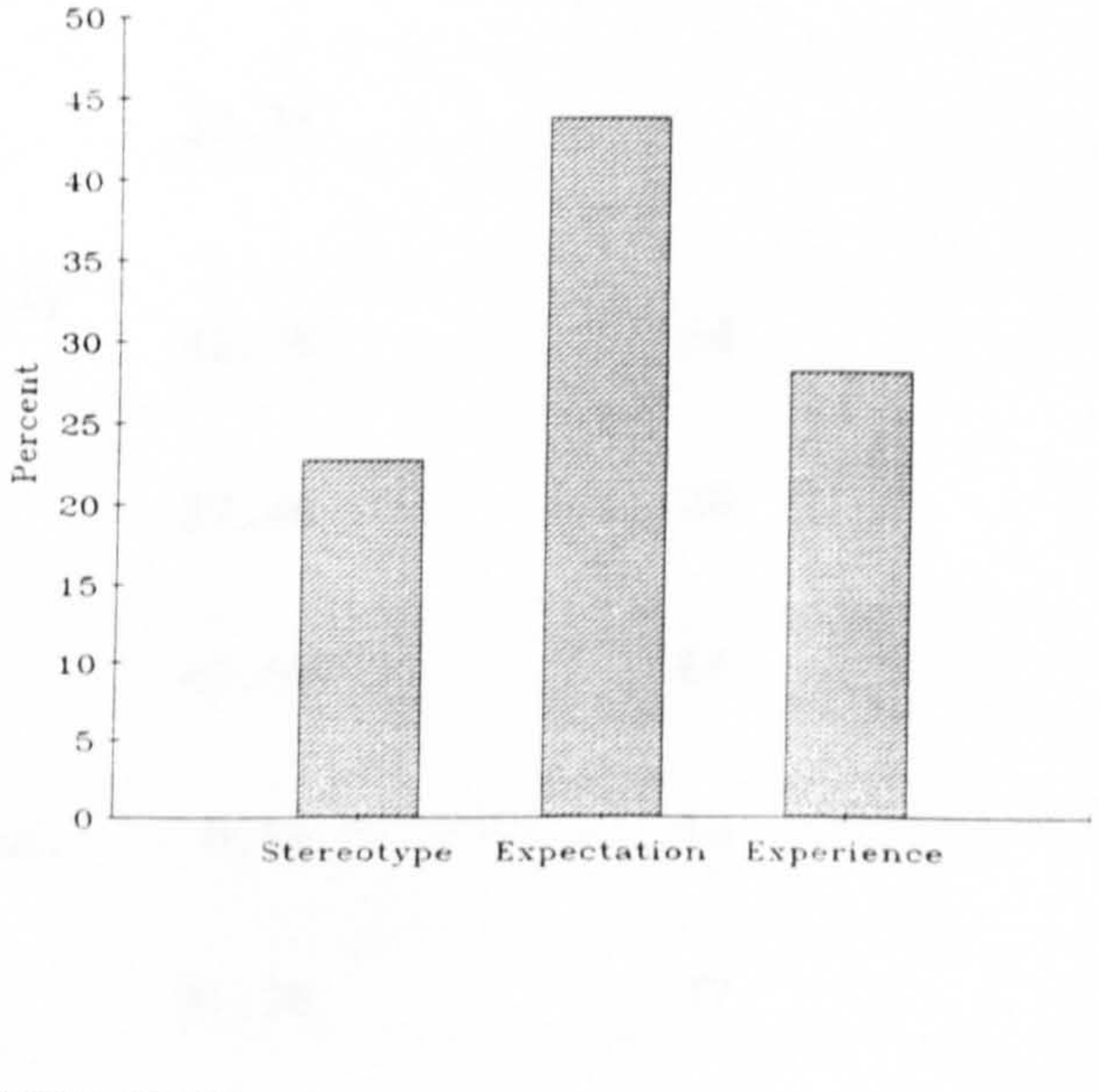
Figure 5

Histograms representing the percentages of women reporting symptoms in line with their stereotypes, own experience or expectations of the menopause.









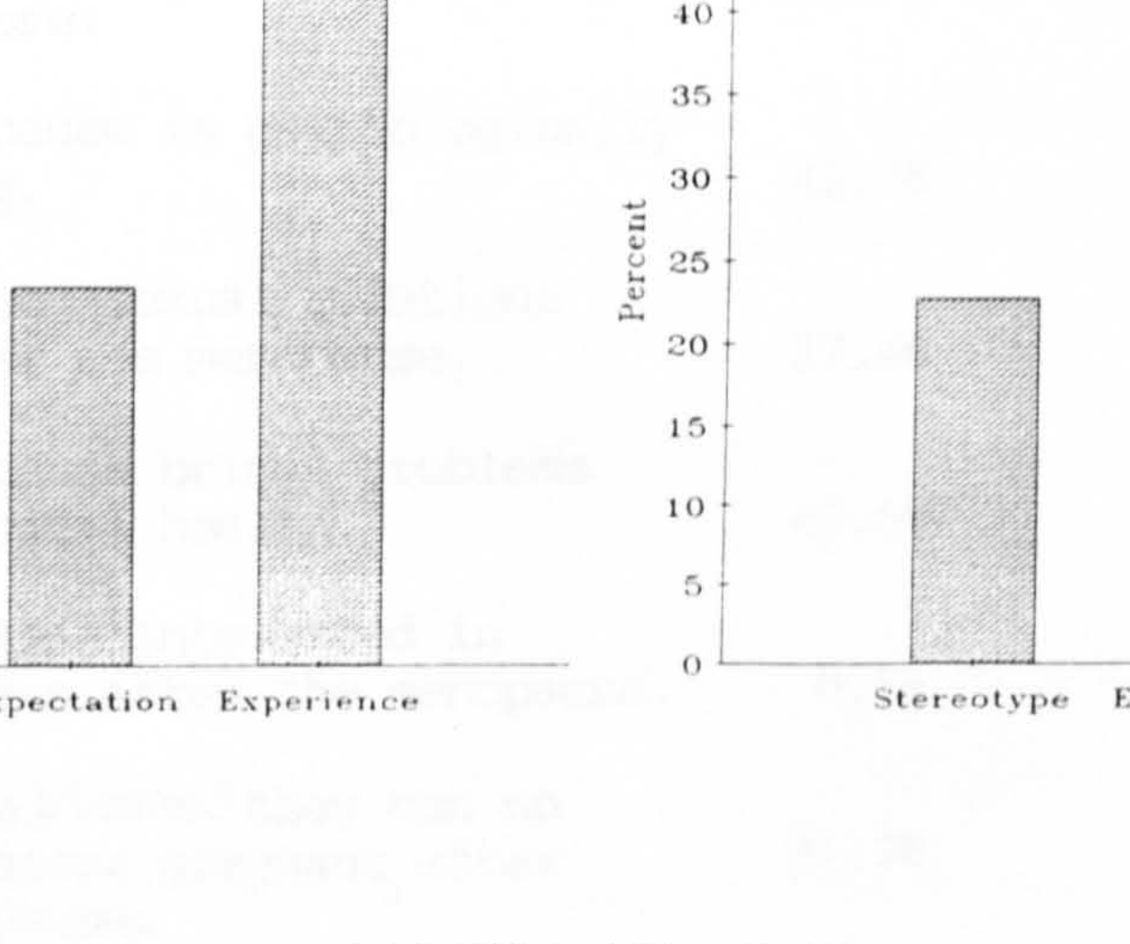


Table 23

Percentages of women agreeing with specific beliefs about the menopause. Equivalent data from Van Keep's (1970) study are shown in parentheses.

Beliefs	Total Agree (N = 117)	Van Keep's Study
1. The menopause is an experience that depends on your attitude of mind.	64.1%	-
2. Menopause is a disturbing thing, which most women dread.	44.1%	-
3. Menopause marks the beginning of old age.	28.8%	25
4. It is good to be free from periods/menstruation at the menopause.	85.5%	79
5. After the menopause, women are more interested in sex, than before.	33.3%	
6. The menopause is psychologically upsetting.	42.7%	64
7. Women enjoy sexual relations less after the menopause.	27.4%	26
8. The menopause brings problems with physical health.	43.6%	66
9. Men are less interested in their wives after the menopause.	8.5%	13
10. Women are pleased they can no longer become pregnant after the menopause.	81.2%	77
Mean Attitude Score	3.22% (2.12)	

menstruation. More than half the sample (64%) agreed that the menopause is an experience that depends on your attitude of mind. In addition, alongside these more positive beliefs, approximately 40% of women believed that the menopause is a disturbing thing which most women dread, bringing both psychological and physical problems. Only a quarter of the sample believed that the menopause marks the beginning of old age. With regard to sexual interest slightly more women believed in increases in interest rather than reduced sexual enjoyment. However the percentages were fairly similar, with approximately one third of the sample believing in increased sexual interest and one third in decreased sexual enjoyment following the menopause. Few women (8.5%) believed that men's interest in women changed following the menopause. These results are similar to those found by Van Keep (1970) except that the current sample believed in the association between physical and psychological problems and the menopause to a lesser degree compared with the earlier study. The comparable data from this survey of British women are shown in Table 23.

(b) Are stereotypes and beliefs modified by experience of the menopause?

Comparisons between menopausal groups for stereotype beliefs were made using the 45-55 year age band as in previous sections. The results are shown in Table 24. Women who had had a hysterectomy or who were taking hormone replacement therapy were again excluded. There were no significant differences between pre, peri and postmenopausal women in the types of stereotypes held about the menopause with the exception of postmenopausal women reporting fewer menstrual changes. There was a non-significant tendency for peri and

postmenopausal women to believe in the occurrence of physical symptoms to a greater extent than premenopausal women. In addition, there were no significant differences between pre, peri and postmenopausal women's stereotyped views when summary scores were used.

The relationship between total scores for these variables and age were examined using Pearson correlations. Younger women had a slight tendency to have more negative beliefs in terms of stereotype (r=.11), expectation (r=-.24) and experience (r=.15). These correlations were all highly statistically significant (p<.004) but of low order.

Table 24

Stereotypic beliefs about possible changes experienced during the menopause (The percentages of women mentioning each type of change is shown).

Stereotype (n=337)	Menopausal Status			
	Pre	Peri	Post	Sign. Level
	n=79	n=124	n=134	
1. Psychological	58.4	60.4	56.3	ns
2. Vasomotor	73.0	63.4	70.8	ns
3. Sexual	9.0	9.7	11.1	ns
4. Menstrual	33.7	35.8	14.6	X218.59; df=2; p<.0001
5. Physical	40.5	51.5	50.7	ns
6. Cognitive	4.5	6.0	6.3	ns
7. Ageing	1.1	3.0	2.1	ns
8. Self-esteem/femininity	0	3.0	2.8	ns
9. Positive/neutral	0	3.0	2.1	ns
10. Sleep	0	2.2	2.8	ns

No significant associations were found between specific beliefs and age. In view of the pilot nature of the attitude scale and the small numbers of subjects the larger (45-65) age range was included in this section. The relationships between global attitude

Table 25

Percentages of pre, peri and postmenopausal women agreeing with specific beliefs about the menopause.

Beliefs	Pre (N = 14)	Peri (N = 25)	(Post(N = 78)	Sign. Level
1. The menopause is an experience that depends on your attitude of mind.	64.3	76.0	60.3	ns
2. Menopause is a disturbing thing, which most women dread.	42.9	44.0	44.9	ns
3. Menopause marks the beginning of old age.	28.6	32.0	21.8	ns
4. It is good to be free from periods/ menstruation at the menopause.	71.4	76.0	91.0	X^2=5.96; df=2; p<.05
5. After the menopause, women are more interested in sex, than before.	28.6	40.0	32.1	ns
6. The menopause is psychologically upsetting.	35.7	56.0	39.7	ns
7. Women enjoy sexual relations less after the menopause.	14.3	24.0	30.8	ns
8. The menopause brings problems with physical health.	21.4	56.0	43.6	ns
9. Men are less interested in their wives after the menopause.	0	4.0	11.5	ns
10. Women are pleased they can no longer become pregnant after the menopause.	92.9	76.0	80.8	ns
Mean Attitude Scores :	3.05 (1.79)	3.71(2.31)	3.85(2.22)	ns

score, individual beliefs and menopausal status are presented in Table 25. There were no significant differences between menopause groups in global attitude score. The only significant result for the individual beliefs was that more postmenopausal women acknowledged pleasure in being free from periods, than did pre or perimenopausal women. There were non-significant trends for women who were peri or postmenopausal to believe that the menopause is more psychologically upsetting and more associated with physical problems, than premenopausal women. Thus overall experience of the menopause does not appear to modify stereotypes or beliefs.

(c) What are the characteristics of women who hold certain stereotypes, expectations and beliefs?

The characteristics of women holding negative stereotyped beliefs and negative expectations were investigated. Negative in this context means that women believe that the menopause is associated with a greater frequency of symptoms and physical and emotional changes; the greater the score the more negative the belief. (For the following analyses the stereotype and expectation total scores were recoded into three categories (-1,1=0,2=2,3+=3). The response category neutral/positive (9) was subtracted from the total score.)

The only demographic, health or psychosocial variable to be associated with stereotype was socioeconomic status. Middle class women believed that in general most women were more symptomatic during the menopause, than working class women ($X2=5.64$; $df=2$; $p<.05$). Negative expectations were however more frequent in women who were currently under stress ($X2=7.88$; $df=2$; $p<0.01$); having difficulty coping with current symptoms ($X2=7.37$; $df=2$; $p<.02$); having future health worries ($X2=13.73$; $df=2$; $p<.001$) and reporting having suffered

from premenstrual tension (X2=10.85; df=2; p<.004). Examination of the crosstabulations revealed that for the variable coping with symptoms, the major difference lay in copers being particularly optimistic about the menopause. There was no great difference between coping or non-coping in women who held a negative expectation. A similar trend was the case for the stress variable.

Table 26

Relationships between current symptom reports and stereotypic beliefs and expectations of the menopause (F values from one-way ANOVA's provided for significant results)

	Stereotype	Expectation
Symptoms	n=337	n=172
Depressed mood	ns	F=4.83; df=2,169; p<.009
Somatic symptoms	ns	ns
Vasomotor Symptoms	ns	ns
Anxiety/Fears	ns	F=4.98; df=2,169; p<.007
Sexual behaviour	ns	F=4.49; df=2,95; p<.01
Sleep problems	ns	ns

The relationships between stereotypes and expectations and current mood and symptom state were examined by one-way analyses of variance, using derived symptom factor scores. The results are shown in Table 26. Beliefs about how most women experience the menopause were not associated with current mood or symptom state. Negative expectations of the menopause were associated with depressed mood, anxiety/fears and, to a lesser extent problems concerning sexual behaviour.

The general characteristics of women holding negative

attitudes and specific beliefs were investigated. Ten demographic, social and health variables were examined. The global attitude score was recoded (0-3=0, 4-10=1), dividing the sample around the median into a group with a more positive attitude (57.5% of the sample) and another with a more negative attitude (42.5% of the sample) so that chi-square tests could be used. This division was fairly arbitrary, however, because of the number of subjects involved a median split was chosen rather than a comparison of smaller groups of women holding more extremes of positive and negative attitude. Those women with a more negative attitude, were more likely to have future health worries ($X2= 10.26$; $df=1$; $p<.001$), have difficult coping with symptoms ($X2= 7.05$; $df=1$; $p<.007$) and to have reported a higher frequency of premenstrual tension (PMT) ($X2=6.27$; $df=1$; $p<.01$). Also a higher degree of recent stress was reported by those with more negative attitudes ($X2=6.30$; $df=1$; $p<.01$). Thus global negative attitude to the menopause was associated with women's current state ie. stress, coping ability and health worries, in addition to reports of PMT which were generally made retrospectively.

Characteristics of women holding individual beliefs are shown in Table 27. In view of the number of correlations performed only significance levels of $p<.01$ and above were considered here. Women who reported that they had experienced PMT believed that the menopause does not depend upon one's attitude of mind. These women may believe that the experience is influenced by other, perhaps more external, factors. Similar characteristics were shared by women believing that the menopause brings psychological and physical problems. These women worried about future health, had difficulty in coping with current symptoms and again reported having suffered from PMT in the past.

Table 27

Demographic, health and psychosocial characteristics of women holding specific beliefs about the menopause (only significant findings are reported).

Beliefs	Associated Characteristics
1. The menopause is an experience that depends on your attitude of mind.	PMT (X^2=11.56; df=2; p<.0007)
2. Menopause is a disturbing thing, which most women dread.	
3. Menopause marks the beginning of old age.	
4. It is good to be free from periods/ menstruation at the menopause.	
5. After the menopause, women are more interested in sex, than before.	
6. The menopause is psychologically upsetting.	Employed (X^2=5.64; df=1; p<.01) Future health worries (X^2=7.68; df=2; p<.005) Coping with symptoms (X^2=9.02; df=1; p<.002) PMT X^2=9.07; df=1; p<.002)
7. Women enjoy sexual relations less after the menopause.	
8. The menopause brings problems with physical health.	Self rated general health (X^2=8.93; df=2; p<.01) Future health worries (X^2=9.4; df=1; p<.002) Coping with symptoms (X^2=10.67; df=1; p<.001) PMT (X^2=8.5;df=1; p<.003)
9. Men are less interested in their wives after the menopause.	
10. Women are pleased they can no longer become pregnant after the menopause.	

Employed women believed the menopause was not so psychologically upsetting and women with poor self-rated general health tended to believe that the menopause is associated with physical problems.

In view of the sampling problem resulting in this subsample being different from the parent sample, in terms of socioeconomic status (see Chapter 8), individual beliefs and total attitude scores were examined to see whether they were associated with socioeconomic status. There were no significant differences in total attitude scores between middle and working class women, although there was a non-significant tendency for middle class women to have a more negative attitude. For individual items one belief was significantly associated with socioeconomic status - the belief that physical problems occur. Middle class women held this belief to a greater extent than working class women ($X2=4.17$; $df=1$; $p<.04$).

Finally the relationships between beliefs and current mood and symptom scores were examined. The results of one-way analyses of variance for the global attitude score and individual beliefs are shown in Table 28. Again, because of the number of analyses performed and the number of subjects, only significance levels of $p<.01$ or greater were considered as significant. It is the general pattern of results that is of interest here rather than specific relationships.

The results of the global attitude scores show that general attitude to the menopause, as assessed here, was associated with current mood state and current experience of somatic and sexual problems. The experience of vasomotor symptoms was not, however, associated with holding a negative attitude to the menopause.

When individual beliefs were examined, depressed mood was associated with a greater range of the negative beliefs. For

Table 28

Relationships between current symptoms, total attitude score and specific beliefs about the menopause
(F values (df.s) from one-way ANOVA's provided for significant results)

Beliefs	Symptoms (N=117)					
	Depressed Mood (df=1,115)	Somatic Symptoms (df=1,115)	Vasomotor Symptoms	Anxiety/ Fears (df=1,115)	Sexual Behaviour (df=1,56)	Sleep Problems (df=1,115)
1. The menopause is an experience that depends on your attitutde of mind	F=7.77 p<.006	F=12.01 p<.0007	ns	F=6.62 p<.01	ns	F=6.06 p<.01
2. Menopause is a disturbing thing, which most women dread.	F=8.58 p<.004	F=6.79 p<.01	ns	ns	ns	ns
3. Menopause marks the beginning of old age.	ns	ns	ns	ns	ns	ns
4. It is good to be free from periods/ menstruation at the menopause.	ns	ns	ns	ns	ns	ns
5. After the menopause, women are more interested in sex, than before.	ns	ns	ns	ns	F=-11.63 p<.0009	ns
6. The menopause is psychologically upsetting.	F=12.39 p<.0006	ns	ns	ns	ns	ns
7. Women enjoy sexual relations less after the menopause.	F=6.42 p<.01	ns	ns	F=6.51 p<.01	ns	ns
8. The menopause brings problems with physical health.	F=9.85 p<.002	ns	ns	F=13.35 p<.0004	ns	ns
9. Men are less interested in their wives after the menopause.	F=6.99 p<.0009	ns	ns	ns	ns	ns
10. Women are pleased they can no longer become pregnant fter the menopause.	ns	ns	ns	ns	ns	ns
Total Attitude Score:	F=13.70 p<.0004	F=13.86 p .0003	ns	F=13.38 p<.0004	F=6.43 p<.01	ns

depressed mood and sexual behaviour, the individual beliefs were quite closely associated with reported symptom experience. Currently experiencing symptoms was associated with the belief that the menopause does not depend upon one's attitude of mind. Women who were symptomatic may thus be less likely to believe that they have control over the menopause.

In summary, stereotyped beliefs about the menopause included beliefs about both physical and psychological sequelae and were more negative than expectations or reported experience of the menopause. On the whole these stereotyped beliefs did not appear to be modified by experience of the menopause and were independent of current mood or symptom state. Middle class women were more likely to hold these negative beliefs. Negative personal expectations on the other hand were associated with current mood state, current ability to cope with symptoms and current stress. Thus expectations of one's own menopause may be based on one's current psychological state as well as one's expectations based on experience of past premenstrual problems.

When beliefs were assessed by providing specific statements, both positive beliefs (relief from pregnancy and menstruation) were acknowledged. More positive beliefs were elicited using this type of questioning compared with responses to an open question. Again the negative beliefs were primarily about physical and psychological problems occurring during the menopause. Specific beliefs about the menopause did not generally differ between women of differing menopausal status nor were they associated with the experience of vasomotor symptoms. These beliefs were however associated with current mood and physical state and with perceived ability to cope with symptoms, being under current stress, having had PMT, and having

more future health worries.

The finding that stereotyped beliefs were not associated with current mood or physical state suggests that women were responding at a level of beliefs about most women, rather than from personal experience. The results suggest that the expectation and attitude scale measures may be tapping similar types of belief, both being influenced by current state, recent stress and ability to cope. There was a significant association ($r=.33$; $p<.04$) between global attitude score and expectation of the menopause but not with reported experience of the menopause. It is not clear whether beliefs influence symptoms or vice versa. Longitudinal studies are needed to assess this relationship further.

The attitude sample differed from the parent sample in being more middle-class. Since socioeconomic status was associated with the belief that physical problems occur during the menopause, it will be necessary to bear this in mind when comparisons are made with other populations (for example in Chapter 12). For the purposes of the results described in this section the socioeconomic status difference is less important since only within sample comparisons were made.

The nature of beliefs about the menopause will be explored further in the following studies (see Chapters 10 and 12).

(vii) <u>Do demographic, psychosocial or cognitive factors, in addition to menopausal status, predict symptom experience in women aged 45-55 years</u>?

The relationships between psychological and somatic symptoms and menopausal status were examined in section (iii). Although certain symptom groups - depressed mood, vasomotor symptoms, sexual

and sleep problems - were associated with menopausal status other variables may also predict the presence of these symptoms. Here the relationships between demographic, psychosocial, health and cognitive variables and symptom experience will be examined in order to (a) describe the characteristics of women who may be more likely to experience symptoms and (b) ascertain to which factors symptoms may be most appropriately attributed to, during this age band. The importance of menopausal status in relation to other variables will be investigated using stepwise multiple regression analysis.

The sample considered in the following analyses was that reported in section (iii), comprising 474 women aged between 45 and 55 years, excluding those who had had a hysterectomy or who were taking hormone replacement therapy. Comparable analyses were carried out on the women aged between 56 and 65 years.

First, one-way analyses of variance were performed for each symptom group, to determine their relationships with psychosocial, health and cognitive variables. The variables are shown in Table 29. Age was not included because the relationships between menopausal status and age were presented earlier (section (iii)). In no instances did age predict symptom experience to a greater extent than menopausal status. The variables shown in Table 29 were recoded into two categories where possible. Details of the full questions asked can be found in Appendix 1. One general health self-rating question was included - "Do you think your general health is: poor/fair, good, very good?" - since responses to this question and other questions about health compared to others and future health worries were highly correlated. Total scores for cognitive factors were used and the responses to an additional question - "Was the menopause

Table 29

Variables to be examined in relation to symptoms in one-way analyses of variance

*Menopausal Status	
Demographic/Psychoscocial variables:	* socioeconomic status (middle/working class)
	* employment (working outside home) (Yes/No)
	* marital status (married/single/widowed/divorced
	* having had children (Yes/No)
	* children still at home (Yes/No)
	general health self rating (Poor/Fair, good/v.good)
	under recent stress (Yes/No)
	marital satisfaction (Poor/Fair, good/v.good)
Health Variables:	* current illness (Yes/No)
	* past illness (Yes/No)
	smoking currently (Yes/No)
	regular exercise (Yes/No)
	overweight (Yes/No)
	premenstrual tension (Yes/No)
Stereotypes, expectations, beliefs:	stereotype
	attitude to the menopause (total score)
	expectation of the menopause
	experience of the menopause
	menopause better/same/worse than expected

* refers to variables included in stepwise regression analysis.

better/same/worse than you expected?" - included in this section. Certain variables, for example socioeconomic status and marital status, are relatively more independent of symptom reports than others such as ratings of general health and recent life stress. Only those considered to be relatively independent of symptom experience (given asterix in Table 29) were included in the multiple stepwise regression analysis.

In Tables 30 (1-6) significant associations between psychosocial, health and cognitive variables are reported with results of one-way analyses of variance. The relative strength of the associations can be assessed by inspection of the F-ratios and significance levels. (In these and the following analyses factor scores were multiplied by 100.) The results of the stepwise multiple regression analyses are shown in Table 31 for those variables which were significantly associated with menopausal status. In this analysis menopausal status was considered as two variables representing possible changes from (i) pre to perimenopause and changes from (ii) peri to postmenopause, since this analysis requires binary or continuous data. Where appropriate, two way analysis of variance tests (MANOVA programme, SPSS; Nie et al, 1975) were carried out in order to clarify the nature of the associations between variables and symptom groups. The detailed results of these analyses are listed in order of presentation in Appendix 4. The results will be described taking each symptom group in turn.

Depressed Mood

Women with depressed mood were more likely to be peri or postmenopausal, to be working class and to have had children (see Table 30 (1)). Socioeconomic status and having had children were found to have independent effects upon mood (see Appendix 4). Divorced and widowed women were more likely to be depressed than those married, followed by single women who tended to be less depressed. Depressed women reported being under greater stress and having more marital dissatisfaction than less depressed women. They viewed themselves as unhealthy and reported suffering from premenstrual tension and past illness. Depressed mood was also associated with smoking cigarettes and not exercising regularly. Beliefs and expectations about the menopause were more negative in depressed women. These women viewed their menopause as being a more symptomatic experience and as being worse than they had expected. Many of these associations may reflect the impact of depression upon behaviour and interpretation of events.

When variables which were considered to be relatively independent of current mood state were examined in a stepwise multiple regression analysis (Table 31), becoming perimenopausal, being working class and having had children were the strongest predictors of depressed mood in that order. However these variables together only accounted for a meagre 4% of the total variation in symptom experience.

The presence of hot flushes (single symptom used and scored 0/1) was associated with depressed mood ($F=3.61$; $df=1,472$; $1\ p<.000$). This association appeared to account for the relationship between menopausal status and depression (see Appendix 4) since the effects of

Table 3.0 (1)

Relationships between symptoms (factor scores) and menopausal status, psychosocial, health and cognitive variables. Significant results from one way analyses of variance are reported

Depressed Mood (N 474)

	Variable	F-ratio (df)	Sign. Level
Menopausal Status	peri/post	6.22 (2,471)	p<.002
Demographic/Psychosocial variables	socioeconomic status	8.79 (1,472)	p<.003
	marital status	4.11 (2,471)	p<.01
	having had children	4.41 (1,472)	p<.03
	current stress	27.00 (1,472)	p<.0000
	marital satisfaction	27.13 (1,472)	p<.0000
Health variables	past illness	3.61 (1,472)	p<.05
	smoking	6.92 (1,472)	p<.01
	no exercise	9.82 (1,472)	p<.001
	self rated health	49.08 (1,472)	p<.0000
	PMT	32.17 (1,472)	p .0000
Stereotype, expectations & beliefs	attitude to the menopause	13.70 (1,115)	p<.0004
	expectation of menopause	4.83 (2,169)	p<.009
	experience of menopause	4.16 (2,299)	p<.01
	menopause worse than expected	7.14 (2,300)	p<.0009

menopausal status became insignificant when the effects of having hot flushes were taken into account. However the extent to which this is an artifact of reporting is unclear, and the direction of causality is uncertain.

Finally when the analysis was repeated for the 56-65 age range of postmenopausal women the strongest predictor of depressed mood was illness (Beta=.06, r=.07, % variance explained =.05). However none of the selected variables predicted depression to any great extent.

Somatic Symptoms

Somatic symptoms did not increase significantly with menopausal status, although there was a tendency in this direction. Psychosocial and health variables were stronger predictors of this symptom group (see Table 30(2)). Women who were working class, who had had children and who were experiencing recent life stress appeared to be particularly at risk. Having children still at home and not being employed were also associated with symptoms but to a lesser degree. Health variables, as may be expected, were associated with reports of somatic symptoms. Women reporting somatic symptoms tended to report more premenstrual tension and were more likely to smoke cigarettes, be overweight and not take regular exercise. Attitude towards the menopause, rated experience and view of the menopause in relation to expectations were all associated with symptom reports.

Two way analyses of variance were carried out to examine whether there were interactions between variables in their effects upon reports of somatic symptoms. The variables considered here were socioeconomic status, having had children, having a child still at home, employment and current illness. The results are shown in detail in Appendix 4. There were no significant interactions between

Table 30 (2)

Relationships between symptoms (factor scores) and menopausal status, psychosocial, health and cognitive variables
Significant results from one way analyses of variance are reported

Somatic Symptoms

	Variable	F-ratio (df)	Sign. Level
Menopausal Status	peri/post	2.58 (2,471)	ns (p<.07)
Demographic/Psychosocial variables	socioeconomic status	10.64 (1,472)	p<.001
	employment (outside the home)	4.25 (1,472)	p<.04
	having had children	6.75 (1,472)	p<.009
	children still at home	3.95 (1,472)	p<.04
	current stress	7.26 (1,472)	p<.007
Health variables	current illness	5.52 (1,472)	p<.01
	smoking	4.34 (1,472)	p<.03
	overweight	9.52 (1,472)	p<.002
	no exercise	12.36 (1,472)	p<.0005
	self rated health	24.74 (1,472)	p<.0000
	PMT	21.15 (1,472)	p<.0000
Stereotype, expectations & beliefs	attitude to the menopause	13.86 (1,115)	p<.0003
	experience of the menopause	10.43 (2,299)	p<.001
	menopause worse than expected	7.91 (2,300)	p<.0005

socioeconomic status and any other variables except for the variable 'having had children'. Working class women who had had children were more likely to report somatic symptoms. In view of this interaction the effects of having had children and socioeconomic status should not be considered separately. Having a child still at home and socioeconomic status however appeared to have independent effects upon somatic symptom reports.

The results of the two way analyses of variance also showed that the effects of not working and current illness upon somatic symptom reports became insignificant when the effects of socioeconomic status were held constant. In other words these variables did not explain a significant amount of the variation in somatic symptom reports over and above the effects of socioeconomic status.

Somatic symptoms therefore were more common in working class women and those who had a child still at home. In general the effects of socioeconomic status were stronger than the effects of other predictive variables. The association between having had children and somatic symptoms was only true for working class women. Women suffering from somatic symptoms also reported being more stressed, had less healthy lifestyles and had a generally more negative attitude to the menopause.

Vasomotor Symptoms

The major factor associated with reports of vasomotor symptoms was clearly becoming menopausal (see Table 30(3)). The results of the multiple stepwise regression analysis are shown in Table 31. Becoming perimenopausal accounted for 11% of the variance in reports of vasomotor symptoms, while becoming postmenopausal explained an additional 1% of the variance. Thus despite menopausal status being a

major predictor of vasomotor symptoms there is considerable variation between women's experience of these symptoms which is unexplained. No demographic or psychosocial variables were associated with vasomotor symptoms. Women with these symptoms tended to rate their general health as poor and, somewhat surprisingly, overweight women reported more of these symptoms. In terms of beliefs those with vasomotor symptoms tended to experience the menopause as being more symptomatic and as being worse than they expected.

Table 30 (3)

Relationships between symptoms (factor scores) and menopausal status, psychosocial, health and cognitive variables

Vasomotor Symptoms

Variable		F-ratio(df)	Sign. Level
Menopausal Status	peri/post	33.71(2,471)	p<.000
Demographic/ psychosocial variables	none significant		
Health variables	overweight	4.61(1,472)	p<.03
	self-rated health	5.11 (1,472)	p<.005
Stereotype expectations and beliefs	Experience of the Menopause	13.63(2,299)	p<.0000
	Menopause worse than expected	5.72(2,300)	p<.003

Anxiety/Fears

Reports of anxiety/fears did not increase across stages of the menopause (see Table 30(4)). Psychosocial variables associated with

anxiety included socio-economic status (being working class), not working, having had children and experiencing recent life stress. The variables having had children and not working were shown to have effects independent of socioeconomic status in accounting for the variation in anxiety symptoms. For details of the two way analyses of variance see Appendix 4.

Table 30(4)

Relationships between symptoms (factors scores) and menopausal status, psychosocial health and cognitive variables

Anxiety/Fears

	Variable	F-ratio(df)	Sign. Level
Demographic/ psychosocial variables	Socioeconomic status	17.42(1,472)	p<.0000
	Employment	6.98(1,472)	p<.008
	having had children	11.62(1,472)	p<.0007
	current stress	17.29(1,472)	p<.0000
Health variables	past illness	7.19(1,472)	p<.007
	no exercise	11.64(1,472)	p<.0007
	self rated health	56.54(1,472)	p<.0000
	PMT	25.34(1,472)	p<.0000
Stereotype, expectations beliefs	attitude to the menopause	13.38(1,115)	p<.0004
	expectation of the menopause	4.98(2,169)	p<.007
	experience of the menopause	8.93(2,299)	p<.0002
	menopause worse than expected	9.10(2,300)	p<.0001

Anxious women also tended to report more past illness and premenstrual tension as well as general poor health. They tended to take less regular exercise. They had a generally negative attitude towards the menopause and also expected a more symptomatic menopause for themselves.

Despite the lack of association between reports of anxiety and

menopausal status, there was a significant association between anxiety and reports of hot flushes (F=28.23; df=1,472; p<.0000). This finding could be an artifact of symptom reporting, anxious women generally reporting more symptoms or anxious women may be more prone to experiencing vasomotor symptoms. If there is a causal relationship the direction is uncertain.

Finally in the older age range, again being working class and being older increased the likelihood of fears and anxieties. These variables together accounted for 4% of the variance in the 56-65 year old sample.

Table 30(5)

Relationships between symptoms (factors scores) and menopausal status, psychosocial, health and cognitive variables

Sexual Behaviour

	Variable	F-ratio(df),*	Sign.Level
Menopausal Status	peri/post	3.11(2,267)	p<.04
Demographic/ psychosocial variables	current stress	9.73(1,268)	p<.002
	marital satisfaction	6.26(1,268)	p<.01
Health variables	current illness	4.19(1,268)	p<.04
	PMT	6.46(1,268)	p<.01
Stereotype, expectations, beliefs	attitude to the menopause	6.43(1,516)	p<.01
	expectation of the menopause	4.49(2,975)	p<.01
	experience of the menopause	4.98(2,121)	p<.008

* There were a reduced number of complete scores for this variable

Sexual Behaviour

Sexual difficulties were associated with menopausal status (Table 30(5)). It was the stage of becoming postmenopausal that was the strongest predictor of sexual difficulties (see Table 31); this variable accounting for 2% of the total variance. Current stress, poor marital relationship and current illness were also associated with this factor. Women with sexual difficulties reported having more past premenstrual tension and expected to have problems during the menopause and had a more generally negative attitude to it. Menopausal status and current illness taken together only accounted for 4% of the variance in sexual difficulties. In the 56-65 age range the strongest predictor of symptoms was age which explained 5% of the variance. Younger 56-65 year olds reported more problems. Partner availability and levels of sexual activity need to be considered when interpreting this result. Hot flushes were not associated with sexual difficulties.

Sleep Problems

Sleep problems were significantly associated with menopausal status, being working class, and having had children. Women with sleep problems also reported having poor marital relationships and more recent life stress (see Table 30(6)). They viewed their own health as poor, reported having had premenstrual tension and were more likely to smoke cigarettes. Their menopause was described as being symptomatic and worse then they had expected. Sleep problems were also associated with the presence of hot flushes ($F=15.57$; $df=1,472$; $p<.0001$).

Table 30(6)

Relationships between symptoms (factor scores) and menopausal status, psychosocial and cognitive variables

Sleep Problems

	Variable	F-ratio(df)	Sign. Level
Menopausal Status	peri/post	5.40;(2,471)	p<.004
Demographic/ psychosocial variables	socioeconomic status	23.90;(472,1)	p<.0000
	having had children	4.88;(472,1)	p<.02
	current stress	8.29;(472,1)	p<.004
	marital satisfaction	4.90;(472,1)	p<.02
Health variables	smoking	5.77;(472,1)	p<.01
	self-rated health	24.50;(472,1)	p<.0000
	PMT	17.44;(472,1)	p<.0000
Stereotype, expectations, beliefs	Experience of menopause	3.92;(299,2)	p<.02
	Menopause worse than expected	7.30;(300,2)	p<.0008

The results of the stepwise regression analysis (Table 31) show that socioeconomic status was a stronger predictor of sleep problems than menopausal status. These two variables, together with 'having had children', only explained 6% of the variation in this symptom group, suggesting that other explanatory variables need to be considered. When the analysis was repeated for the 56-65 year age group the main predictor again was socioeconomic status which accounted for 3% of the variance.

The relationships between certain variables were examined further in two way analyses of variance (see Appendix 4). Socioeconomic status and having had children were found to have independent effects upon sleep problems. The relationship between

Table 31

The relative importance of menopausal status, psychosocial and health variables as possible predictors of individual differences in symptom experience. Multiple stepwise regression analyses are presented for each symptom.

Symptom	Explanatory Variables	Standardized Beta	Percentage Variance Explained	Correlation
Depressed mood (N=474)	pre-perimenopause	.15	2	.15
	socioeconomic status	.11	1	.13
	having had children	.07	1	.12
			Total variance explained = 4%	
Vasomotor symptoms (N=474)	pre-perimenopause	.28	11	.34
	peri-postmenopause	.12	1	.25
			Total variance explained = 12%	
Sexual behaviour (N=270)	peri-postmenopause	.12	2	.15
	current illness	.13	2	.14
			Total variance explained = 4%	
Sleep problems (N=474)	socioeconomic status	.18	4	.20
	pre-perimenopause	.10	1	.14
	having had children	.08	1	.12
			Total variance explained = 6%	

experience of hot flushes, menopausal status and sleep problems was also examined. When the presence of hot flushes was controlled for the association between sleep problems and menopausal status became nonsignificant. Whether sleep problems occur in response to vasomotor symptoms or whether this finding is an artifact of reporting requires further clarification.

In summary, attempts were made to describe the characteristics of women experiencing somatic and psychological symptoms. Psychological and somatic symptoms were, as expected, associated with psychosocial factors such as socioeconomic status, parity, marital status and employment status. However subtle and specific relationships between these variables were evident for different symptom groups. While menopausal status was an important predictor of sexual problems, sleep problems and depressed mood, psychosocial factors tended to explain an equal if not greater proportion of symptom variation. Menopausal status was the main predictor of vasomotor symptoms, however only 12% of the variation was explained. For all symptom groups considered, the proportion of variation explained by selected background variables was very low.

(c) DISCUSSION

The interpretation and discussion of the above findings will be the main focus here. Since similar themes will be addressed in the following chapters discussion of hypotheses, problems in design and the findings in relation to other research will be presented in the final discussion (Chapter 13).

This study aimed to examine symptom prevalence in women of different menopausal status and to investigate the characteristics of

women experiencing such symptoms, taking account of various methodological problems outlined in Chapter 5. The sample of women taking part in this cross-sectional survey, although about to attend a hospital facility, appeared to be characteristic of women living in South East England and were not particularly hypochondriacal or health conscious. In view of the high response rate and the possible risk of being overly intrusive, non-responders were not followed up. Attempts were made to conceal the purpose of the study, assessment measures of known psychometric properties were used and the effects of age were taken into account during investigation of the relationship between menopausal status and symptoms.

As expected vasomotor symptoms and sexual difficulties, particularly vaginal dryness, were associated with menopausal status and were best predicted by this variable. Although there were significant associations between menopausal status and the prevalence of depressed mood and sleep problems the increases were small. There was however a significant increase in depressive 'caseness' affecting approximately 10% of peri and postmenopause women. These symptoms were also associated with psychosocial factors to an equal or greater extent. Despite these increases neither global health ratings nor utilization of medical services showed parallel changes. Anxiety symptoms, somatic symptoms and memory/concentration did not change significantly with menopausal status.

The extent to which symptoms were distressing to these women was partially examined by asking about coping ability. Perimenopausal women found symptoms more difficult to cope with. While the term symptom has been used here these symptoms may best, in general, be considered as reports of physical or emotional changes not necessarily

implying pathology. For example although changes in vaginal dryness and sexual interest were reported the majority of women reported satisfaction with their sexual relationship.

Women's stereotypes and beliefs about the menopause tended to focus upon expected increases in psychological and physical symptoms during the menopause. However when supplied questions were used both negative and positive beliefs were reported simultaneously. Stereotyped beliefs were more negative than personal expectations. Comparing stereotyped beliefs about the menopause with the percentages of women actually reporting symptoms in different stages of the menopause, the results seem to suggest that the frequency of symptoms was overestimated in stereotypic beliefs. The percentages of women reporting, either concurrently or retrospectively, that they experienced various symptoms during the menopause was in fact similar to the percentages of women reporting current symptoms in the survey. It seems likely that symptoms experienced may be concurrently or retrospectively attributed to the menopause because of the temporal association between these events. Given that menopausal status accounted for only a small proportion of the variation in symptoms it seems likely that symptoms were being inappropriately attributed to the menopause in retrospective responses.

Middle class women were more likely to hold negative stereotyped beliefs. Results from the scale of 10 specific beliefs also revealed that it was middle class women who believed that the menopause brought physical problems. It is possible that these women may be more receptive to medical information about the menopause as bringing psychological and particularly physical problems; a stereotype which may be derived from biological or disease-deficiency

models. It is interesting that beliefs about physical and psychological changes were more frequently held by these women rather than beliefs about changes in sexual feelings, relationships or ageing. It may be that the latter beliefs were derived from previously pervasive views rather than currently held stereotypes.

There was some evidence suggesting that personal negative expectations and specific beliefs may be based on assessments of one's own current mood state and ability to cope with symptoms as well as expectations based upon past experience of menstrual problems. Positive expectations were associated with ability to cope. The association between reports of past premenstrual tension and beliefs may be interpreted in several ways. Retrospective reports of past premenstrual tension and current belief may both be influenced by current mood state. Conversely the experience of premenstrual tension may influence women's attitudes and expectations of the menopause. It is interesting that one attitude statement ("The menopause is an experience that depends upon your attitude of mind") was negatively associated with reports of premenstrual tension, suggesting that the experience of premenstrual tension may be linked with beliefs about uncontrollability of menstrual events. A hormonal explanation is also possible if some sort of hormonal pattern or vulnerability is associated with both premenstrual and menopausal experience. Prospective studies are needed to clarify whether these beliefs do influence experience of the menopause since here the direction of causality is equivocal.

Certain general psychosocial factors were found to characterize women who experienced particular symptoms during the 45-55 age band. Being working class, having had children and being

under current stress were associated with both psychological and somatic symptoms. Marital status (being divorced/widowed, married, single in that order) and poor marital relationships were associated with depressed mood. Women not working outside the home reported more somatic symptoms and anxiety. It is interesting that women with a child still at home were more prone to somatic symptoms. This finding provides evidence against the 'empty nest syndrome' as a coincidental cause of symptoms during midlife.

The above factors are consistent with general psychosocial predictors of psychological symptoms but do not relate specifically to reactions to the menopause. The results of the current study show that, in general, women did not feel more stressed in peri or postmenopausal stages. Two groups of women may, however, be more vulnerable when passing through the menopause. Those who became menopausal at an early age (45-47 years in this study) and women who had a hysterectomy tended to report more symptoms than other postmenopausal women.

Although factors were identified which may be predictors of symptoms these accounted for very small proportions of the variation in symptoms. Only a small number of possible predictors could be examined being those which may be considered relatively independent of symptom reports. As a result variables such as stress, marital satisfaction, attitudes and beliefs, premenstrual tension, and health variables were not included in the multiple stepwise regression analyses. Prospective studies are needed to enable more accurate predictors of symptoms.

Table 32

Possible explanations of relationships between symptom reports and menopausal status

1. There is a direct hormonal effect eg. reduced oestrogen levels.

2. Symptoms are secondary to vasomotor symptoms or autonomic changes.

3. Symptoms result from psychological reactions to the menopause.

4. Coincidental life events may best explain symptoms.

Depressed mood, sleep and sexual problems were associated with menopausal status but the variance explained by menopausal status was small. Thus it seems inappropriate to attribute these symptoms entirely to menopausal status. Even for vasomotor symptoms only 12% of the variation was explained by menopausal status. Nevertheless the association between these symptoms and menopausal status still requires careful interpretation. Sleep problems, sexual difficulties and depressed mood will be discussed in turn. Several possible explanations are outlined in Table 32.

Considering sleep problems first, there was some evidence that sleep problems may represent secondary reactions to hot flushes which might explain the relationship between sleep problems and menopausal status. The possibility that this association is an artefact of over-reporting of symptoms by more distressed and symptomatic women remains. The association between sleep problems and attitudes to the menopause could be taken to support the third explanation, sleep problems being a part of a general psychological reaction to the menopause. However in view of the nature of the design, no causal

assumptions can be made with regard to either of the above findings. There was no consistent evidence to suggest that specific life events were temporally associated with the menopause which might lead to the increase in prevalence of sleep problems. Finally a hormonal explanation cannot be ruled out.

The sexual behaviour factor included reports of vaginal dryness and sexual interest. Vaginal dryness was associated with being postmenopausal and is understood as a symptom resulting from reduction in oestrogen levels. Sexual interest decreased at peri and postmenopause. Overall sexual behaviour was not associated with reports of hot flushes, whereas negative attitudes were. As discussed above the causal relationships between these variables is not known. Other factors such as partner's sexual interest, reactions to vaginal changes, emotional reactions to the menopause and assumptions about what sexual relationships should be like may influence a woman's sexual interest. Here psychological reactions to the menopause, reactions to possible vaginal dryness and coincidental events (partner's interest) are possible explanations. The majority of women were satisfied with their sexual relationships despite reporting some of the above changes, suggesting that there may be a readjustment and perhaps acceptance of changes in this aspect of their relationships which need not be considered problematic.

Interpretation of the link between depressed mood and menopausal status has important theoretical and practical implications. From the results of this cross-sectional survey it is estimated that 10% of women would show an increase in depressed mood at peri and postmenopause. There was also a significant increase in psychiatric 'caseness'. This effect was largely made up of an

increase in irritability in perimenopausal women and decrease in enjoyment and feelings of well being in both peri and postmenopausal women. Differing causal mechanisms may be responsible for these changes.

Considering irritability first, it is possible that this may be a reaction to hot flushes which may cause embarrassment and physical discomfort. Irritability was however more strongly associated with being perimenopausal than with the experience of hot flushes. Perimenopausal women were, as may be expected, more preoccupied with bodily changes and also reported having more difficulty in coping with symptoms. An alternative explanation is that becoming perimenopausal, with initial changes in menstrual cycle, and or experience of hot flushes, may lead to uncertainty and possible irritation if these changes are difficult to understand. Similarly autonomic nervous system changes, which are known to accompany vasomotor symptoms, may lead to states of heightened arousal and irritability. These feelings may reduce in intensity at postmenopause when the problem is more clearly understood and when women learn to cope with them. It is interesting that there were no changes in anxiety during the menopause, which may have been expected.

A purely hormonal explanation is also possible given the changes in both oestrogen and gonadotrophic hormones during the menopause. Finally some women may feel angry about becoming menopausal if they feel that it is a negative experience or experience negative attitudes from others.

Items reflecting a less specific mood change - not enjoying things as I used to and no feelings of well being - evidenced more permanent changes at both peri and postmenopause. There was some

evidence that depressed mood could be a reaction to vasomotor symptoms given the association between these variables. However it is possible that women who were already depressed may be more likely to experience vasomotor symptoms. It has been suggested that stresses and/or depression may influence the action of oestrogens and in this way effect the extent of vasomotor symptoms (see Chapter 3 (i)c). The finding that anxiety was associated with hot flushes and not menopausal status may be taken to support the view that women who were already anxious may report more hot flushes when they become menopausal. A similar pattern may be the case for depression. Finally depressed women, because of their mood, may be more preoccupied by bodily changes and thus more sensitive to them, leading to increased reports of hot flushes. Prospective studies are needed to disentangle these variables.

Depressed mood could result from psychological reactions to the menopause, for example, in women who expect to feel worse after the menopause or for whom loss of fertility and menstruation may have particular significance. The data on beliefs suggest that negative beliefs were associated with depressed mood but again causal relationships cannot be assumed. In response to the stress question few women pointed to the menopause as a source of stress. However more peri and postmenopausal women smoked cigarettes; this could not be explained in terms of age or cohort differences. This finding is difficult to interpret; a possible explanation is that increased smoking is a reaction to mood changes at the menopause.

No clear coincidental life events were apparent. Postmenopausal women were less likely to have a child at home and more likely to be grandparents. Neither of these variables was associated

with depressed mood. Having a child still at home was however associated with reports of somatic symptoms. Thus children leaving home does not appear to be a coincidental stressor. These results suggest that having a child still at home could be more stressful. Reported stress did not increase across menopausal groups. Reported stress was clearly associated with depressed mood, however because of the nature of the stress question reporting of stress may be a consequence of depressed mood. There did appear to be a coincidental increase in the number of bereavements reported by peri and postmenopausal women which increased stepwise across menopausal stages. There were too few numbers to enable a statistical analysis but bereavement may account for a small proportion of increased depression in this sample. Finally a direct hormonal effect remains a possible explanation.

CHAPTER 10

Study II. Psychological and somatic experiences of the menopause. Symptom prevalence and predicting individual differences: Prospective Study.

(a) METHOD

A sample of premenopausal women who took part in Study I were recontacted three years later. Those who had become peri or postmenopausal were included in a repeated measures design in order to examine changes in symptom prevalence and to attempt to predict the characteristics of women who may experience distress or specific symptoms during the menopause.

(i) Subjects

Women who were premenopausal when they took part in the cross-sectional survey were considered for follow-up. They were selected if they agreed to take part in future research (this item was included in the Women's Health Questionnaire), if they were aged 47 years or more more, if they had not had a hysterectomy and if they had completed the first questionnaire in 1983. Fifty six subjects met these criteria. The age criteria was selected since the women would be more likely to become peri or postmenopausal within the follow-up period.

(ii) Materials

The Women's Health Questionnaire (WHQ) was described in the previous chapter and is shown in Appendix 1. The version of the questionnaire containing the stereotype question rather than the 10 specific beliefs was used since the premenopausal group had completed this version of the WHQ and the stereotype measure was of interest as a possible predictor of symptoms during the menopause. An additional page of questions was included (see Appendix 3) to provide further detail of their menstrual patterns, the impact of hot flushes and their personal explanations of depressed mood, if this had been reported. Only details of menstrual patterns are referred to in this study.

(iii) Procedure

Fifty six women aged 47 years or more were sent the WHQ by the author. A covering letter explained that we were interested in following up women to complete the survey of women's health and that responses would be treated in confidence. The letter is included in Appendix 3). The questionnaires were sent out in April 1986 being approximately three years after the initial questionnaires were completed. A stamped addressed envelope was provided. Women were classified into menopausal groups based on the criteria used previously. However here details about menstrual patterns were obtained from the additional page of questions (Appendix 3).

Women who had not become peri or postmenopausal and those who had had a hysterectomy or who were taking hormone replacement therapy at follow-up were excluded from the main analysis.

Paired t-tests and McNemar tests for related samples were used

to assess the statistical significance of possible changes in general health and symptom reports. The carryover effects of completing the initial questionnaire were estimated to be small given the time lag of three years. The effects of initial level of symptomatology at assessment I were examined in Section (v) where premenopausal levels were considered as predictors of scores of assessment II.

(b) RESULTS

The results are presented in seven sections which are comparable to the format followed in Study 1. First, sample characteristics were described followed by sections covering symptom prevalence and general health changes. Possible additional changes in psychosocial factors such as reported stress were examined in section (iv) and stereotypes and expectations in section (v). In section (vi) variables assessed at premenopause were used to predict symptom scores at peri/postmenopause in order to examine the characteristics of women who may be more likely to experience changes. Finally specific hypotheses were tested to attempt to clarify the relationships between depressed mood and cognitive factors and vasomotor symptoms.

(i) Sample characteristics

Forty seven subjects, out of a possible 56, completed and returned the follow-up questionnaire representing a response rate of 85.7%. Of the 47 subjects 31 were perimenopausal, 10 were postmenopausal and 6 were still premenopausal. Two perimenopausal and two postmenopausal women had had hysterectomies in the preceding three

years and two postmenopausal women were taking hormone replacement therapy. One woman had had both hysterectomy and was taking HRT. When these subgroups were excluded 36 women remained who were experiencing or had experienced a natural menopause (see Table 33). There were too few subjects in the excluded categories to provide comparison groups. The following results sections will focus upon the results of the 36 subjects who formed the prospective sample.

Table 33

Numbers of women falling into different menopausal status categories in the prospective sample, with details of those excluded

Assessment I

Premenopause
n=56

Assessment II

n=47/56

	Premenopause	Perimenopause	Postmenopause
	6 (12.8%)	31 (65.9%)	10 (21.3%)
Hysterectomy	0	2	2
HRT	0	0	2 (1 subject fell into both categories)

Excluding six premenopausal and five who had had hysterectomy or HRT: n=47 - (6 + 5) =36

Sample characteristics are shown in Table 34 for subjects at both points of assessment. As expected there was a significant increase in the age of the subjects at assessment II. There were no

significant changes in socioeconomic status. There was a slight change in marital status at follow-up, one woman becoming widowed. Although fewer women were employed outside the home at follow-up this difference was not significant ($p<.21$, McNemar test). The characteristics of this subsample were similar to those of the parent sample shown in Chapter 9, Table 13, although they were rather younger being predominantly perimenopausal.

Table 34

Characteristics of the prospective sample with details taken at both assessment points. (n=36)

	Assessment I Premenopause	Assessment II Peri/postmenopause	Significance Level
Mean Age	48.51(s.d.1.40) (range 47-52 yrs)	51.40(s.d.1.31) (range 50-55 yrs)	t=25.25; df=35 p<.000
Marital Status			
Single	11.4	11.4	ns
Married	88.6 %	85.7 %	
Widowed	0	0	
Divorced	0	0	
Socioeconomic Status			
Middle class (I, II, IIa)	48.6 %	48.6 %	ns
Working class (IIIb, IV, V)	51.4	51.4	
Employment Status			
Full time employed	31.4	25.7	
Part time employed	40.0 %	34.3 %	
Total employed	71.4	60	ns

(ii) Prevalence of symptoms with changes in menopausal status

Pre and peri/postmenopausal women's scores on the symptom questionnaire were compared for the individual symptoms. Since increases in age were inextricably linked with changes in menopausal status it was not possible to examine the independent effects of age changes. However, within the five year age range available, variation in symptom scores at pre and at peri/post could be examined in relation to age. The results are presented later in this section.

First the means, standard deviations and paired t-test results are shown in Table 35, in which derived symptom scores from each assessment were compared. Factors 3, 8 and 9 were not included in the analysis for reasons outlined in Chapter 8. There were significant increases in vasomotor symptoms, sleep problems and in depressed mood when this subsample of women became peri or postmenopausal. These findings replicate the results of the cross-sectional survey. The mean scores were generally slightly lower but very similar. Again neither somatic symptoms nor anxiety/fears changed significantly. Although there appeared to be a change in sexual behaviour when the means were examined, this did not reach significance. Women were included in this comparison if they were sexually active and only eight of the prospective sample completed all questions in this section. It is possible that with larger numbers this difference might have reached significance. There were no significant differences between pre and peri/post menopausal women in their perceived ability to cope with symptoms. In fact a higher proportion felt that they coped better at peri/postmenopause (83%) compared with when they were premenopausal (75%).

Table 35

Comparison of symptom scores assessed at pre and peri/postmenopause using paired t-tests

Symptom Group	I Premenopause mean (s.d.)	II Peri/post menopause mean (s.d.)	Paired t-tests & sign. levels
1. Depressed Mood	.13 (.17)	.21 (.24)	t=-2.44; df=35; p<.02
2. Somatic Symptoms	.27 (.27)	.36 (.22)	n.s.
3. Vasomotor Symptoms	.24 (.37)	.45 (.37)	t=-3.43; df=35; p<.002
4. Fears/ Anxieties	.29 (.29)	.32 (.27)	n.s.
5. Sexual Behaviour	.09 (.16)	.23 (.25)	n.s. (n=8)
6. Sleep Problems	.27 (.32)	.40 (.37)	t=-2.92; df=35; p<.006

Next, individual symptoms were examined using McNemar tests. Taken individually the only significant changes were for hot flushes (19) ($X2=2.40$; df=35; p<.009), and not enjoying things (7) (binomial; p<.01). There was a non-significant tendency (binomial; p .07) for irritability to increase. Fifty four percent reported hot flushes at peri/postmenopause. Given that 25.71% of premenopausal women reported hot flushes this represents a 30% increase in this symptom. No premenopausal women reported the symptom - not enjoying things - but 20% did when they become peri/postmenopausal. There was similarly a 17% increase in reports of irritability from 29% of pre to 46% of peri/postmenopausal women. There was a trend for both items in the sleep factor to increase with menopausal status.

Complete data on sexual behaviour were available for only eight women. Several women had completed only a proportion of the questions on either occasion. Although no firm conclusions can be drawn, examination of the individual items suggested that neither sexual activity nor sexual satisfaction changed with menopausal status. There were complete data for 34 women for the question regarding sexual interest. Fifteen of these (44%) reported loss of sexual interest at premenopause, while 16 (47%) described this experience at peri/postmenopause. The difference was not significant. Only one case of vaginal dryness was reported and this was at peri/postmenopause. Two women who had been excluded did report sexual difficulties, including vaginal dryness, but had sought hormone replacement therapy. Thus the qualitative results suggest that if changes in sexual behaviour existed then these were small and largely associated with vaginal dryness.

The depression scores were re-examined to find out whether there was an increase in the proportion of women suffering from more severe depression. At premenopause there was only one case of clinical depression, using the cut-off point of greater than .43 on the depression scale. However at peri/postmenopause there were six cases, that is five new cases. In percentage terms there was an increase from 2.9% to 17.1%. This difference approached significance (binomial; $p<.06$) using McNemar test for related samples.

In this study age changes and menopausal status changes were inevitably confounded. In order to assess the possible contribution of age, correlations between age (5 year range) and symptom scores were calculated at both assessments. The results are presented in Table 36. At premenopause the only significant association was an

increase in somatic symptoms in older premenopausal women. When the sample became peri/postmenopausal age was associated with several symptom groups (somatic symptoms, anxiety/fears, sexual behaviour and a non-significant tendency for depressed mood) but in a negative direction. It was the younger peri and postmenopausal women who tended to experience more symptoms. Thus apart from a slight increase in somatic symptoms with age in premenopausal women, the main effects of age were that women who became peri/postmenopausal at a younger age experienced more symptoms. If age effects were to explain the effects of menopausal status upon symptoms then changes in the same direction, ie. positive correlations, would have been expected. These results are discussed further in Section (c) but generally do not suggest that age changes could account for menopausal status changes.

Table 36

Pearson correlations between age and symptom scores at assessment I (premenopause) and assessment II (peri/postmenopause) (N=36)

		Correlations with Age	
	Symptoms	Assessment I	Assessment II
1.	Depressed mood	ns	r=-.26; (p<.06)
2.	Somatic symptoms	r=.36; p<.02	r=-.33; p<.02
3.	Vasomotor symptoms	ns	ns
4.	Anxiety/fears	ns	r=-.35; p<.01
5.	Sexual behaviour	ns	r=-.37; p<.02
6.	Sleep problems	ns	ns

Table 37

General health characteristics of the sample assessed at pre(I) and peri/postmenopause (II) (n=35). (Paired t-tests or McNemar tests were used as appropriate)

	I Premenopausal	II Perimenopausal	Significance Level
General Health Ratings			
General health:			
Poor/Fair	22.9%	34.3%	n.s.
Current illness	25%	38.8%	n.s.
Past illness	44.4%	33.3%	n.s.
Future health worries	33.3%	47.2%	n.s.
Suffered from PMT	34.28%	34.28%	n.s.
Health Behaviour			
Cigarette smokers	5.1%	5.1%	n.s.
Exercise	41.6%	38.8%	n.s.
Overweight	44.4%	47.2%	n.s.
Doctor's visit/ last month	42.9%	48.6%	n.s.
Currently taking medication	52.8%	47.2%	n.s.
Attended doctor for menopause	8.3%	27.8%	n.s. (p<.07)
Pilowsky Hypochondriasis Scale			
Bodily preoccupation	.68 (.83)	.97 (.85)	t= -1.89; df=2; p<.06
Disease phobia	.82 (.82)	.91 (.81)	n.s.
Disease conviction	.20 (.40)	.17 (.38)	n.s.
Total Scores	2.68 (2.91)	2.80 (2.78)	n.s.

(iii) General health ratings and health behaviour and changes in menopausal status

Details of changes in general health ratings and health behaviour with menopausal status are shown in Table 37. There were no significant changes in subjective ratings of general health or in health related behaviour such as smoking, exercise or weight. Similarly there were no significant changes in health concerns as assessed by the Pilowsky hypochondriasis scale. There was however a tendency for menopausal women to report more current illness and worse general health and a tendency ($p<.06$) for these women to be more preoccupied with bodily changes.

Again despite symptom changes reported in the previous section peri/postmenopausal women were not more likely to evaluate their health negatively, to seek medical help or to take medication. There was however a non-significant tendency ($p<.07$) for peri/post menopausal women to have attended their doctor because of the menopause compared with those not yet menopausal.

(iv) Do reports of life stresses or other psychosocial factors change with menopausal status?

Possible changes in marital satisfaction, children living at home and reported stress were examined to investigate whether increased symptom reports could be explained by such life changes. The results are shown in Table 38.

As expected from Study I significantly more women were grandparents at peri/postmenopause and significantly fewer had a child still at home. These changes may be explained by the increased age of the women at peri/postmenopause.

As reported in Study I there were similarly no changes in

Table 38

Children, marriage and stress: assessment of possible changes with menopausal status. (McNemar tests were used to assess levels of significance)

	I Premenopausal	II Peri/postmenopausal	Significance Level
Children & Marriage			
Children			
Having had children	82.9%	82.9%	n.s.
At home	74.3%	57.1%	p<.03
Grandchildren	17.1%	37.1%	p<.03
Marriage			
Poor/fair	12.5%	12.5%	n.s.
Recent Stress			
Stress			
Currently stressed	58.4%	57.1%	n.s.
Types of stress			
Family	-	17.1%	
Work	16.7%	11.4%	
Bereavement	-	5.7%	
Children	16.7%	5.7%	
Parents	-	5.7%	
Marriage	-	2.9%	
Financial	-	-	
Divorce/separation	-	-	
Other	25.0%	8.6%	

ratings of marital satisfaction or in reports of recent stress. Premenopausal women who were stressed were not concerned with work and children, however there was a greater range of responses for peri/postmenopausal women including problems with parents, general family problems and bereavements. There were too few subjects within these categories to assess the significance of changes in types of stress but it may be relevant that no cases of bereavement were reported at premenopause while there were two cases three years later when this sample became menopausal.

(v) Stereotypes, expectations and reported experience of the menopause

In this longitudinal design it was possible to examine changes in stereotyped beliefs on becoming peri/postmenopausal and to compare personal expectations with reported experience of the menopause. The percentages of women reporting symptoms or experiences in response to the stereotype, expectation and experience questions are shown in Table 39. Mean summary scores were also included, as were those from the cross-sectional survey for comparison purposes.

Considering summary scores first, there was a marked similarity in the mean scores in both prospective and cross-sectional studies. Expectations of the menopause were in general more positive than reported experience of the menopause. Beliefs about most women's menopause were more negative than these women's beliefs about their own menopause. Stereotyped beliefs became significantly worse (as assessed by summary scores) when these women became peri or postmenopausal ($t=2.09$; $df=32$; $p<.04$). While there was a similar difference between means in the cross-sectional survey the difference

did not reach significance in the former study.

Table 39

Stereotype, expectation and reported experience of the menopause. The percentages of women mentioning each type of change are shown

Categories of Response	I Stereotype Pre n=36	I Expectation Pre n=33	II Stereotype Peri/Post n=36	II Experience Peri/Post n=33
1. Psychological	57.6	20	46.3	20
2. Vasomotor	69.7	40	75.6	45.3
3. Sexual	9.1	4	7.3	-
4. Menstrual	27.3	44	41.5	43.3
5. Physical	45.5	28	53.7	56.7
6. Cognitive	6.1	4	14.6	3.3
7. Ageing	-	8	7.3	3.3
8. Self-esteem femininity	-	4	7.3	6.7
9. Positive/ neutral	-	28	-	3.3
10. Sleep	-	-	2.6	3.3
Summary Scores Means (s.d.'s)	2.15(0.87)	1.33(1.34)	2.52(1.28)	1.76(0.81)
Comparable results from Study 1	2.20(0.88)	1.17(1.93)	2.38(1.05)	1.97(1.32)

Examination of the separate categories of responses to these questions revealed that again vasomotor, psychological and physical symptoms were most commonly reported in relation to general beliefs about the menopause. Although there was a significant increase in summary scores for stereotyped beliefs, this increase may be partly

accounted for by the broader range of categories used by peri/postmenopausal women. There were increases in use of the vasomotor, physical and menstrual categories but in fact a decrease in the use of the psychological category. Experience may thus modify beliefs about the type of symptoms to be associated with the menopause.

Expectations of the menopause included menstrual, vasomotor, physical and positive experiences. Almost 30% expected their own menopause to be neutral or beneficial. When these premenopausal women became peri or postmenopausal their expectations appeared to be generally confirmed, particularly with regard to reports of psychological, vasomotor and menstrual symptoms. Only 20% reported having psychological symptoms associated with the menopause. However there appeared to be discrepancies between expectations and reported experiences with regard to physical symptoms and positive/neutral experiences. Peri/postmenopausal women attributed considerably more physical changes to the menopause and reported fewer positive experiences. A small proportion of peri/postmenopausal women included changes associated with self esteem in their beliefs about the menopause in general and in their own menopause. Finally peri/postmenopausal women were asked to evaluate their current experience of the menopause in the context of their expectations. Approximately half the sample (52.4%) described their menopause as being the same as they had expected. One third rated their menopause as better than expected, and 14.3% described their menopause as being worse than expected.

(iv) Prediction of symptoms experienced at peri/postmenopause by demographic, psychosocial and cognitive factors assessed at premenopause

In this section psychosocial, health and cognitive factors were investigated as possible predictors of symptoms experienced at peri/postmenopause. Attempts were made to replicate the results of the cross-sectional survey. The prospective design used here enabled additional variables to be included which had been confounded with symptom reports in the cross-sectional survey. These include measures of stereotypes, expectations, self rated stress, marital satisfaction, coping ability and hypochondriacal concern. Premenopause values of these variables were used unless otherwise stated.

One way analyses of variance were performed to test hypotheses based on the cross-sectional survey. Following this, stepwise multiple regression analyses were carried out for the depressed mood and vasomotor symptom scores since these variables were of particular interest in this study and both variables consistently increased with menopausal status in both cross-sectional and prospective studies.

The background variables found to be significantly associated with symptom groups are shown in Table 40. This table is comparable with Tables 30 (1-6) in Study I. In general appreciably fewer background variables were associated with symptoms in this study.

Depressed mood was associated with having been under stress before the menopause. Although the associations between depressed mood and marital status, having had children and socioeconomic status were not confirmed there were non-significant tendencies in directions expected from the cross-sectional survey. The relationship between depressed mood and not being employed approached significance ($p<.08$). For the health variables the association with lack of exercise was

Table 40

Relationships between symptoms and demographic, psychosocial, health and cognitive variables assessed at peri/postmenopause. Significant results from one-way analyses of variance are reported.

	Symptoms assessed at peri/postmenopause					
Demographic/ Psychosocial Variables (pre)	Depressed Mood	Somatic Symptoms	Vasomotor Symptoms	Anxiety/Fears	Sexual Behaviour	Sleep problems
	current stress F=9.76; (1,34) (p<.01)				current stress F=5.62 (1,34) p<.05	
Health Variables	no exercise F=3.83 (1,34) p<.05	current illness F=4.29 (1,34) p<.04 no exercise F=4.89 (1,34) p<.03 self-rated health F=4.53, (2,33) p<.01	PMT F=6.81 (1,34) p<.01	no exercise F=4.89 (1,34) p<.03		current illness F=5.65 (1,34) p<.02 no exercise F=4.01 (1,34) p<.05 coping ability F=12.89 (1,34) p<.0004
Stereotype, expectations, beliefs	Stereotype(pre) F=3.64, (2,33) p<.03 experience F=4.90 (2,33) p<.03					expectation ns (p<.06)
Pilowsky Hypochondriasis Scale						
Total score	F=4.54 (2,33) p<.01	F=3.64 (2,33) p<.03		F=4.93 (2,33) p<.01		
Bodily preoccupation	F=3.99 (2,33) p<.02	F=7.23 (2,33) p <.002		F=3.72 (2,33) p<.03)		
Disease conviction	ns (p<.05)	ns		ns		
Disease phobia	F=3.34 (2,33) p<.04	F=5.92 (2,33) p<.006		F=4.88 (2,33) p<.01		

confirmed. There were no significant relationships here between depressed mood and past illness or self rated health. There was a tendency ($p<.09$) for premenstrual tension, reported at premenopause to be associated with depressed mood at peri/postmenopause. The link between cigarette smoking and depressed mood could not be assessed because only two subjects were smokers. The Pilowsky Hypochondriasis Scale scores assessed at premenopause were also examined here as possible predictors. The hypochondriasis total score, together with subscores of bodily preoccupation and disease phobia were significantly associated with depressed mood.

Finally it was possible to examine the effects of stereotype and expectation, assessed at premenopause, upon depressed mood when experiencing the menopause. Holding a negative stereotype before the menopause was associated with depressed mood during the menopause. Currently reported experience of the menopause was, not surprisingly, associated with depression at that time. Neither premenopausal expectations, nor evaluation of the menopause compared to experience, were associated with depressed mood.

For somatic symptoms, again there were no significant associations with demographic or psychosocial factors. However there were non significant tendencies for mean differences to be in the expected directions based on the cross-sectional survey results. For example stress reported at premenopause was associated with somatic symptoms ($p<.06$), but it did not reach significance. In general, health variables were stronger predictors of this group of symptoms. Being ill and having a poor concept of one's own health at premenopause, together with hypochondriacal fears and beliefs, predicted experience of somatic symptoms during the menopause. Again

not taking regular exercise before the menopause was associated with symptoms later on. However no cognitive factors predicted reports of somatic symptoms.

As was the case in the cross-sectional survey, few background, psychosocial or health variables were associated with reports of vasomotor symptoms. The only significant finding was that women who reported suffering from premenstrual tension at premenopause were more likely to experience vasomotor symptoms during the menopause. There was a non significant tendency for those who had difficulty in coping with symptoms at premenopause to report more vasomotor symptoms at peri/postmenopause. This was also the case for other symptom groups.

For anxiety/fears the results were generally in the same direction as those derived from the cross-sectional survey. However few associations reached significance. Not taking regular exercise and having hypochondriacal concerns prior to the menopause were associated with anxiety and fears during peri/postmenopause.

Changes in sexual behaviour were primarily associated with having been under stress prior to the menopause, thus confirming the cross-sectional findings. Marital satisfaction could not be adequately assessed since too few women described their marriages as poor. There was a non significant tendency for women who reported PMT before the menopause to report changes in sexual behaviour during the menopause.

Sleep problems were reported more frequently by women who had been ill, had not taken regular exercise and who had difficulty coping with symptoms before the menopause. There was a nonsignificant tendency ($p<.06$) for negative expectations to predict sleep problems during the menopause.

In summary, although some of the general results of Study I were not confirmed, the current findings tended to be in the direction expected from the results of Study I. Being under stress and being concerned about one's health before the menopause were associated with experience of emotional and somatic symptoms during the menopause. Women who did not take regular exercise were also more prone to depressed mood, anxiety, somatic and sleep problems. One of the cognitive variables held before the menopause (negative stereotype) was associated with depressed mood when the menopause was reached. Reports of past premenstrual tension were associated with reports of vasomotor symptoms in peri/postmenopausal women. This association was not found in the cross-sectional survey.

In order to assess the relative importance of predictive factors, stepwise regression analyses were carried out for two variables - depressed mood and vasomotor symptoms. These variables were of particular interest in this study in view of their relationship with menopausal status and the clinical and theoretical implications of clarifying predictors of these variables. Variables which were associated with these symptom groups (outlined above and shown in Table 41) were included in the analysis. These results were assessed at premenopause. In addition premenopause levels of depressed mood and vasomotor symptoms were included. In the cross-sectional survey and in this study a proportion of women were found to report vasomotor symptoms before reaching the menopause. Thus the variables entered into the stepwise regression analysis for depressed mood (assessed during the peri/postmenopause) were:

premenopausal depressed mood, stress, socioeconomic status, employment status, exercise, PMT, stereotype and total hypochondriasis score (8 variables).

Those entered for vasomotor symptoms were:

premenopausal vasomotor symptoms and PMT.

Table 41

The relative importance of psychosocial, health and cognitive variables as possible predictors depressed mood and vasomotor symptoms. (Standardized Beta, % variance explained and correlations from multiple stepwise regression analysis.

Symptom reports	Explanatory Variables	Standardized Beta	% variance explained	Correlation
1. Depressed Mood	Premenopausal depressed mood	.42	34	.58
	Stereotype	.21	6	.38
	Employment status	.27	5	.32
	Socioeconomic status	.24	6	.18
		Total:	51%	
2. Vasomotor Symptoms	Premenopausal vasomotor symptoms	.55	25	.50
	PMT	.33	12	.38
		Total:	37%	

The results are presented in Table 41, where details of standardized Beta coefficients, simple correlation coefficients and the percentage variance explained by each variable are provided together with the total variance explained. In this analysis each variable was entered in turn, the variance accounted for by the previous variable being removed before the next variable was considered.

Depressed mood during the menopause was most strongly predicted by depression experienced before the menopause. Previous depression accounted for 34% of the variance. Holding a negative stereotype explained an additional 6% of the variance in depressed mood. Next being unemployed outside the home and socioeconomic status together explained an additional 11% of the variance.

In total these variables explain 51% of the variation in depressed mood in peri/postmenopausal women. When this analysis was repeated, excluding previous depression, stress and not taking exercise became the stronger predictors explaining 17% and 7% respectively. These results suggest that previous depression may incorporate the effects of not taking exercise and experience of stress.

Considering vasomotor symptoms, the results of the stepwise regression analysis showed that women who reported vasomotor symptoms and/or reported premenstrual symptoms before the menopause were more likely to report vasomotor symptoms on becoming menopausal. These variables together explained 37% of the variance in vasomotor symptoms. Possible interpretations of these results will be discussed in Section (c).

In order to address specific questions raised in Study I regarding theoretical explanations of increases in depressed mood during the menopause and to aid interpretation of the above findings, several additional analyses were carried out. These are described in the following sections.

(vii) Relationships between depressed mood and explanatory variables: further analyses

First the relationship between depressed mood and negative stereotype was examined to clarify whether the association between stereotype (pre) and depressed mood (peri/post) might be explained by a close association between depressed mood and beliefs at both assessment points.

Simple regression analyses were carried out to look at the association between these variables at the two assessment points. Being depressed before the menopause was not associated with negative stereotypic beliefs about the menopause at that time. Nor was depressed mood at peri/postmenopause associated with stereotype assessed concurrently. However negative stereotype assessed before the menopause did predict depressed mood when these women became menopausal ($r=.36$, $p<.02$). Thus the relationship between stereotype and depressed mood cannot be explained in terms of negative beliefs being an aspect of depressive thinking. As suggested by the results of the stepwise regression analysis, depressed mood and stereotype assessed before the menopause appeared to have independent effects in accounting for the variation in depression during the menopause.

Secondly, the relationship between depressed mood and vasomotor symptoms requires further consideration since it has been suggested that depressed mood during the menopause may be an emotional reaction to vasomotor symptoms which commonly occur at that time. Again regression analyses were carried out to examine the relationship between vasomotor symptoms and depression at pre and peri/postmenopause. At peri/postmenopause vasomotor symptoms were not significantly associated with concurrent mood ($r=.15$, ns). In the

cross-sectional survey and in this prospective study a proportion of premenopausal women (15% and 25% respectively) had reported experiencing vasomotor symptoms. There was a nonsignificant tendency for women who reported vasomotor symptoms at premenopause to report depressed mood on becoming menopausal ($r=.26$, $p<.06$). Thus depressed mood cannot be explained by concurrent experience of vasomotor symptoms. These results suggest that rather than being a secondary reaction to vasomotor symptoms, depression may be more likely to contribute to a tendency to experience such symptoms.

(c) DISCUSSION

This study was aimed to examine the prevalence of psychological and somatic symptoms, or changes, in women both before and during the menopause using a prospective design. Attempts were made to pinpoint the characteristics of women who may be more symptomatic or distressed on becoming menopausal. Using this type of design it was possible to clarify causal relationships and separate the effects of variables which were confounded in Study I.

The main findings will be summarized and compared with results of the cross-sectional survey reported in Study I. Secondly the theoretical implications of these results will be discussed with particular emphasis on depressed mood. Discussion of hypotheses, problems in design and the findings in relation to previous research will be presented in the final discussion (Chapter 13).

The characteristics of the prospective sample (n=36) were similar to the population of Study I in terms of age, marital status,

socioeconomic and employment status. Vasomotor symptoms, sleep problems and depressed mood significantly increased between pre and peri/postmenopause, thus confirming the main findings of the cross-sectional survey regarding symptom prevalence. There were too few complete responses to assess changes in sexual behaviour but examination of individual items revealed that any changes were probably insubstantial and largely associated with vaginal dryness. The decrease in sexual interest at peri and postmenopause described in Study I was not confirmed here. Increases in depressed mood were again largely accounted for by individual items - 'not enjoying things' and irritability. There was a non-significant increase in psychiatric 'caseness' as assessed in relation to the GHQ (Goldberg, 1972). The percentages of pre and peri/postmenopausal 'cases' were similar in the cross-sectional (4.7% - 18.3%) and prospective (2.9% - 17.1%) studies. In contrast to the cross-sectional survey findings, in this study perimenopausal women did not report greater difficulty in coping with symptoms than premenopausal women.

Changes with age were difficult to assess since age and menopausal status changes were inseparable. Examination of correlations between age and symptoms at each assessment did not support the view that age might account for changes with menopausal status. In fact younger peri/postmenopausal women tended to be more symptomatic. These women would not be considered to be prematurely menopausal, however the age of menopause could still have an effect within the 'normal range'. It is also possible that younger peri/postmenopausal women had more recently experienced menstrual and possibly vasomotor symptoms within the three year follow up period, and may be reacting more strongly to these changes.

The findings regarding general health ratings and use of medical services were confirmed, suggesting that there were discrepancies between symptom reports and general evaluations of health and health behaviour. In Study I there was an increase in cigarette smoking in peri and postmenopausal women, however this was not confirmed in this prospective study. Only two women smoked and there were no changes in smoking patterns three years later. Although not significant there were changes in exercise patterns, some women taking up exercise and others becoming less active at peri/postmenopause.

There was a non-significant tendency for women to become more preoccupied with bodily changes at peri/postmenopause which supports the findings of the cross-sectional study. Although here there were no significant differences in total hypochondriasis scores.

The findings of no changes in marital satisfaction or reported general stress were confirmed as was a small increase in the frequency of bereavement in peri and postmenopausal women.

Stereotypes, expectations and reported experience of the menopause were examined and the results quite clearly confirmed the cross-sectional findings. Stereotypes about the menopause were more negative than expectations and reported experience and were characterized by beliefs that most women experienced vasomotor, somatic and psychological symptoms during the menopause. Expectations of their own menopause were more positive, 30% expected positive or neutral experiences. In this study a smaller proportion of women (20%) attributed psychological experiences to the menopause. The same number expected psychological changes to occur; this level may be considered to be reasonably accurate given the prevalence of symptoms described above (bii). When experiencing the menopause over half the

sample believed that physical changes occurred with the menopause. This belief was not supported by the symptom prevalence findings of this study or by the findings of Study I. A similar proportion of the sample believed that most women experience physical symptoms. Thus there seemed to be an overestimation of physical changes based possibly upon these women's stereotypes about the menopause. Approximately half the sample described their menopause as being consistent with their expectations, one third better and only 14% worse. A more positive expectation and more positive general beliefs may therefore be justifiable.

When psychosocial, health and cognitive factors were examined as possible predictors of symptom experience the cross-sectional findings were not confirmed for general psychosocial factors such as socioeconomic status, marital status, employment or having children. However there were tendencies in the expected direction for most variables. The lack of significant associations may be explained by the smaller sample size. However, despite the small numbers, there were several specific predictors such as reported stress, exercise, premenstrual tension and beliefs about the menopause which were significantly associated with peri/postmenopausal symptoms. In this study the peri and postmenopausal women had changed menopausal status relatively recently compared with equivalent groups of women assessed in the cross-sectional survey. A greater proportion of the variation in symptoms in peri/postmenopausal women assessed here may be explained by more 'menopause-specific' background variables. These results suggest that exercise and stress levels and general concerns about health and illness before the menopause have an effect upon experience of depressed mood, anxiety and somatic symptoms during the

menopause. Women who have difficulty in coping with symptoms, take little exercise, experience illness and have a negative expectation about the menopause had a tendency to suffer from more sleep problems when they became menopausal.

Predictors of vasomotor symptoms and depressed mood were considered in multiple stepwise regression analyses. Having experienced vasomotor symptoms before the menopause and having experienced premenstrual tension were associated with vasomotor symptoms experienced during the menopause and accounted for 37% of the variation in these symptoms. Few predictors of vasomotor symptoms have previously been found. It could be argued that the premenopausal women who reported vasomotor symptoms were already perimenopausal. Studd et al (1977) compared premenopausal women who complained of hot flushes and those who did not, and found that the former group had higher FSH values than the latter group. These women were all menstruating regularly. These results highlight the problems of defining menopausal status. The accepted menstrual criteria were used in this study however, and in both studies premenopausal women were found to report vasomotor symptoms. Alternatively it is possible that there is a base rate of reporting which reflects less stable temperature control or less stable autonomic nervous system activity. In order to investigate this question a small unpublished study was carried out by the author. In this study the Women's Health Questionnaire was given to 58 women aged between 25 and 35 years who were attending a family planning clinic. Less than half of the subjects were taking the oral contraceptive. Of the sample, 18.8% reported having hot flushes in response to the questionnaire. There was no associations between oral contraceptive use and vasomotor

symptom reports. The findings from this additional study support the explanation that younger women also report having vasomotor symptoms. This sub-group of women may be more vulnerable to developing vasomotor symptoms when they become menopausal.

Women who reported premenstrual tension may, as previously discussed, have developed a sensitivity to menstrually associated events thus anticipating symptoms when there are changes in their menstrual patterns. Alternatively there may be some sort of hormonal vulnerability in these women which may lead to both premenstrual and vasomotor symptoms. PMT explained additional variance to that explained by premenopausal vasomotor symptoms, suggesting that PMT sufferers are not necessarily also vasomotor symptom sufferers. The relationship between depression and vasomotor symptoms is discussed later in this section.

In this prospective study peri/postmenopausal depressed mood was explained with greater accuracy. Fifty one percent of the variation in depressed mood was explained compared with only 4% in Study I. Depressed mood experienced before the menopause, not surprisingly, was the best predictor. Negative stereotype was the next strongest predictor followed by not working and socioeconomic status. Negative stereotypic beliefs were not associated with concurrent mood state but did predict future depression on becoming menopausal. Thus the association between premenopausal stereotyped beliefs and peri/postmenopausal depressed mood cannot be explained in terms of depressive negative thinking. The variable premenopausal depression appeared to incorporate the predictive effects of lack of exercise and reported stress.

The above results do not support the explanation that depressed

mood may be a reaction to vasomotor symptoms. There was no significant association between depressed mood and vasomotor symptoms when assessed at peri/postmenopause. Instead there was a tendency for women who were depressed before the menopause to be more likely to experience vasomotor symptoms during the menopause.

There was also little support for the explanation that coincidental life events may explain symptoms. There was no association between children leaving home or having grandchildren and depressed mood. Neither was there an increase in reported stress. There was however an increase in bereavements (two new cases) in peri/postmenopausal women. It is possible that the quality of this stress may influence depression levels despite the overall similarity in stress scores at the two assessments.

There was however support for the explanation that psychological reactions to the menopause may lead to depressed mood. Holding negative beliefs about the menopause explained 6% of the variation in depression. More specifically, believing that most women experienced symptoms, particularly physical symptoms and emotional distress, characterized these stereotyped beliefs.

A considerable proportion of women who were depressed during the menopause were depressed beforehand. Social factors, such as not working outside the home and being working class, also appear to increase the likelihood of depression at this time. Finally evidence relating to the hormonal explanation of depressed mood experienced by menopausal women will be the subject of the next chapter, Study III.

CHAPTER 11

Study III. The relationships between symptoms and hormone levels - LH, FSH and oestradiol

During peri and postmenopause considerable changes in the plasma levels of oestradiol, follicle stimulating hormone (FSH) and luteinizing hormone (LH) occur. It has been suggested that psychological changes during the menopause may be explained by lowered oestrogen levels (Aylward, 1978) or by reduced LH levels (Altman et al, 1975); both hypotheses suggest central nervous system mediation. As discussed in chapter 3, although a hormonal basis is often assumed these explanations have generally not been supported (Coope, 1981; Ballinger et al, 1987).

The relationship between hormone levels and reports of vasomotor symptoms is uncertain. There does not appear to be a direct relationship between oestrogen levels and vasomotor symptoms. It has been suggested that the speed of oestrogen withdrawal may be relevant (Studd et al, 1977).

This study was carried out to estimate the associations between concurrent levels of gonadotrophic hormones (FSH, LH), oestradiol and reports of vasomotor and psychological symptoms. The aims of the study were to attempt to examine the hormonal explanation of depressed mood and to examine the correlates of vasomotor symptoms in a sample of pre, peri and postmenopausal women who were referred to a menopause clinic.

(a) METHOD

(i) Subjects

Women attending the Menopause Clinic at Kings College Hospital, for whom hormonal measures were taken as part of the overall clinical assessment, were the subjects of this study. These were new patients who attended the clinic because of problems felt by them or their referring doctor to be considered to be associated with the menopause. In order to recruit adequate numbers of subjects no age criteria were set. However women who had had a hysterectomy or who were already taking hormone replacement therapy were excluded.

(ii) Materials & Procedure

The Women's Health Questionnaire (Appendix 1) was used to provide demographic and psychological information as well as symptom scores. This was sent to a series of 265 women before their initial visit to the Menopause Clinic at Kings College Hospital. The WHQ was sent by the clinic sister with details of their appointment and women were asked to complete the questionnaire just before their clinic visit and bring it with them to their appointment. This study was carried out between March and December 1983.

A proportion of this sample underwent hormonal assessments as part of their gynaecological evaluation during their initial visit. This subgroup of women tended to be those who were more difficult to classify in terms of menopausal status. For example whether they had undergone hormone changes and were already postmenopausal. FSH and LH plasma levels were expected to rise during peri and postmenopause. Oestradiol plasma levels show the greater decrease during the

climacteric and postmenopause compared to other oestrogens such as oestrone (Studd et al, 1977). Usually both sets of hormone values are used to assess menopausal status and suitability for oestrogen therapy.

Blood samples were taken by the clinic nurse and were processed in the Department of Reproductive Biochemistry. Plasma FSH and LH samples were analyzed using radioimmunoassay and oestradiol by the same method following extraction with an organic solvent. FSH and LH concentrations were measured in international units/Litre (iu/l) and oestradiol in pica mols/litre (pml/1).

The hormone assay results were available within two to three weeks and the data added to the underside of the WHQ by the clinic nurse. Absolute levels of the hormone values were used in the following analyses. Pearson correlation coefficients were computed to examine the relationship between hormone levels and symptom scores, in a single group design.

(b) RESULTS

Two hundred and two women who were sent the WHQ returned completed questionnaires out of a possible 265. This represents a 76.2% response rate. However gonadotrophic hormone levels (LH, FSH) were available for only 62 women and oestradiol levels available for only 47 women. These women became the subjects of this study. While practically all women assessed for oestradiol levels also had gonadatrophic hormone levels taken, some women only had the latter assessment.

Table 42

Characteristics of women for whom (i) gonadotrophic hormones and (ii) oestradiol levels are available

	Subsample (i) (FSH, LH levels)	Subsample (ii) Oestradiol levels)
	n=62	n=47
Age: mean	46.74 (sd.4.35) yrs	46.66 (sd.4.21) yrs
range	37-57 yrs	37-57 yrs
Menopausal Status		
Pre:	27.4%	29.8%
Peri:	37.1%	31.9%
Post:	35.5%	38.3%
Marital Status		
Single:	1.7%	2.1%
Married:	77.4%	76.6%
Widowed:	4.8%	6.4%
Divorced/ Separated:	16.1%	14.9%
Socioeconomic Status:		
Social classes		
I, II, IIIa	51.6%	53.5%
IIIb, IV, V	41.9%	46.5%
DK:	6.5%	-
Employment Status:		
Full-time	43.6	42.5%
Part-time	29.0	29.8%
Total Employed	72.6	72.3%

Sample characteristics for these subgroups of women are presented in Table 42. The two samples were very similar in age, menopausal status, marital status and socioeconomic and employment status. Their average age was 46 years and there was a 20 year age

range. Each category of menopausal status was generally equally represented in these subgroups. The majority of women were or had been married and 72% were currently employed. There was a slight tendency for these women to be from social classes I, II and IIIa.

Table 43

Associations between hormone levels (FSH, LH & oestradiol) and symptom scores. Pearson correlation coefficients are presented for significant associations

Total Sample	Hormones Assessed		
Symptom Scores	FSH (n=62)	LH (n=62)	Oestradiol (n=47)
1. Depressed Mood	ns	ns	ns
2. Somatic Symptoms	ns	ns	ns
3. Vasomotor Symptoms	r=.33; p<.01	ns	ns (r=.28; p<.06)
4. Anxiety/Fears	ns	ns	ns
5. Sexual behaviour	ns	ns	ns
6. Sleep problems	ns	ns	ns
(a) Premenopausal women	FSH (n=17)	LH (n=17)	Oestradiol (n=14)
Depressed mood	ns	ns	ns
Vasomotor symptoms	ns	ns	ns
(b) Perimenopausal women	FSH (n=23)	LH (n=23)	Oestradiol (n=15)
Depressed mood	ns (r=.32; p<.06)	ns	ns
Vasomotor symptoms	ns (r=.27; p<.09)	ns	ns (r=-.36; p<.09)
(c) Postmenopausal women	FSH (n=22)	LH (n=22)	Oestradiol (n=18)
Depressed mood	ns	ns	ns
Vasomotor symptoms	ns	ns	ns

Mean LH and FSH levels were 29.88 (sd. 21.41; range 2-60) iu/l and 25.51 (sd. 19.09; range 1-50) iu/l respectively and mean oestradiol levels were 321.91 (sd. 248.76; range 45-950) pml/l. As expected there were significant increases in FSH values at peri ($t=-4.87$; $df=38$; $p<.000$) and postmenopause ($t=-3.81$; $df=43$; $p<.000$). There were similar stepwise increases in LH values at peri ($t=-3.62$; $df=38$; $p<.000$) and postmenopause ($t=2.86$; $df=43$; $p<.000$). Oestradiol levels were significantly lower in postmenopausal women ($t=2.79$; $df=31$; $p<.0009$).

Correlations betwen hormone levels and symptom scores, are shown in Table 43. The results are presented for the total sample and for pre, peri and postmenopausal women separately. In view of the small numbers only depressed mood and vasomotor symptoms were considered for analysis of each menopausal group. Considering the total sample there were no significant associations between any of the hormone measures and psychological, somatic, sleep problems or changes in sexual behaviour. The only significant association was a positive correlation between follicle stimulating hormone levels and reports of vasomotor symptoms. There was also a tendency for lower oestradiol levels to be associated with vasomotor symptoms; this correlation approached significance. These correlations were of rather low order explaining approximately 10% of the variation in vasomotor symptom reports.

When each menopausal group was considered separately no significant correlations were evident between LH, FSH, oestradiol and vasomotor symptoms or depressed mood. There was however nonsignificant tendencies for vasomotor symptoms to be associated with raised FSH levels and reduced oestradiol levels in the perimenopausal

subsample. There was also a nonsignificant tendency for depressed mood to be more likely to occur in women with higher FSH levels in this subsample of women.

(c) DISCUSSION

There are considerable problems in this type of study related to cyclical variation in the level of hormones with the menstrual cycle and circadian variation in hormone levels. To obtain an accurate assessment of changes through the menstrual cycle in pre and perimenopausal women at least daily samples would be needed with samples being taken at the same time of the day. For postmenopausal women hormone levels would be expected to be rather more constant; LH and FSH levels tending to be high and oestradiol tending to be low. In view of the expected differences in hormone profiles between pre, peri and postmenopausal women these groups were examined together and then separately. Methodological problems are considered later in this section and again in chapter 13.

This study provided estimates of the relationship between hormone levels (FSH, LH & oestradiol) and symptom reports. When all three menopausal categories were included the results suggest that hormonal levels (FSH, LH, and oestradiol) were not associated with reports of psychological symptoms in women of differing menopausal status. The hormonal explanation of depressed mood in peri and postmenopausal women was not supported by this study. These results are consistent with those of Ballinger et al (1987) and Coope (1981). FSH and LH values were similar to those reported by Studd et al (1977)

who described comparable values in a sample of pre, peri and postmenopausal women.

The second main result was a positive correlation between FSH levels and reports of vasomotor symptoms. There was a tendency for lower oestradiol levels to be associated with such symptoms. Although few studies have demonstrated significant associations between hormone levels and vasomotor symptoms (Asso, 1983) a similar finding of an association between FSH values and hot flushes has been reported by Studd et al (1976) in a study of climacteric women who were still menstruating.

When the three menopausal groups were examined separately no significant associations between symptoms and hormone levels were apparent. Assessment of these relationships would be expected to be more accurate for the postmenopausal group, who were not experiencing marked flunctuations in hormones with the menstrual cycle. However within this sample there was no evidence to support an association between hormonal and depressed mood or vasomotor symptoms. The nonsignificant trends for vasomotor symptoms to be more prevalent in women with raised FSH and reduced oestradiol were evident only for perimenopausal women. These results suggest that the correlations found for the total sample may be explained mainly by the relationships between hormones and vasomotor symptoms in perimenopausal women.

Finally there was a nonsignificant correlation between depressed mood and FSH levels in perimenopausal women. There are no obvious biological explanations of this result. Changes in LH and oestradiol levels have more commonly been proposed as mediators of depressed mood (Altman et al, 1975; Aylward, 1976). FSH changes are

usually the first sign of the onset of the menopausal process and are associated with changes in the menstrual cycle (Studd et al, 1977). It is possible that depressed mood could be triggered by awareness of this change in menopausal status. Alternatively a direct hormonal effect is possible. It should be noted however that the findings for this menstruating subsample may be unreliable and that given the small sample size a result approaching significance should not be given much weight.

This study suffers from several major problems. Firstly hormone levels were assessed on one occasion only. For pre and perimenopausal women cyclicity of these hormones could be expected, thus the levels would vary depending on the stage of the monthly cycle (Cooke, 1976) and to a lesser extent depending on the time of day (Adamopoulos et al, 1971). The variation in FSH levels between stages of the menstrual cycle appears to be smaller than the overall difference in FSH levels between menstruating and non-menstruating women, this is not the case for LH levels (Studd et al, 1977). In the current study assessments were usually carried out either in the morning between 10.00 am and 1.30 pm and in the afternoon between 2.00 and 4.30 pm. Greater variation was evident between night and day than between morning and afternoon assessments of oestradiol, FSH and LH in premenopausal women (Adamopoulos et al, 1971).

Secondly there was in most cases a time lag of up to three weeks between completing the WHQ and having the hormonal assessment. However the WHQ symptom questions were shown to be reasonably reliable across short time intervals (two weeks) (see Chapter 8). Hormone assays are expensive and the design of the study was dependent to a large extent upon the availability of clinical assessments.

Finally this was a clinic sample of women being self referred or referred by others for possible menopausal problems. There was however an even distribution of cases (approximately one third) in each menopausal category, and a reasonable spread of hormonal values as there were scores on the symptom rating scale.

In conclusion the results of this study do not support a hormonal explanation of depressed mood in in peri and postmenopausal women. Although methodological problems reduce the strength of this finding, the results for the postmenopausal group, which may be considered to be less prone to error, support this general conclusion and are consistent with the results of similar studies such as Ballinger et al (1987).

CHAPTER 12

Study IV. Helpseeking behaviour: Use of medical services and oestrogen therapy. Comparison of menopause clinic and non-clinic samples.

The overall aims of this study were to examine the characteristics of women who (a) seek medical help for the menopause (ie. attend a specialist menopause clinic) and (b) take medication during the menopause. The relative importance of psychological versus biological factors as possible predictors of helpseeking behaviour will be assessed.

In this study comparisons were made between a non-clinic sample (previously described in Study I) and a menopause clinic sample. The samples were compared on psychosocial, general health, symptom reports and cognitive factors, and discriminant function analyses were used to clarify the groups of variables which may best discriminate between these samples.

Since results relevant to this study were briefly described in Studies I and II these will be summarized in this chapter. In particular knowledge of the characteristics of women who have attended a doctor in the past month and those who take medication (not specifically for the menopause), may increase our understanding of any specific determinants of 'menopause' helpseeking behaviour. The relevant findings will be outlined, in the next section, before the current study is presented.

(1) SUMMARY OF RELEVANT FINDINGS FROM STUDIES I & II

The sample from Study 1 to be examined in this section included women who were taking hormone replacement therapy (HRT) since medication use and helpseeking behaviour are the focus of this study. The age range was 45-55 years, women who had had hysterectomies were excluded and the sample size was 510.

Doctors attendance. Thirty eight percent of this sample reported having visited their doctor in the past month. Peri and postmenopausal women were not more likely to have sought medical help within this time period, than premenopausal women. There was a significant difference between groups but not in the expected direction ($X2=7.33$; $df=2$; $p<.02$). Forty four percent of premenopausal women attended their doctors compared with 40.5% of peri and 30.4% of postmenopausal women. The majority of these women attended once (26.9% of the total sample), 7.2% attended twice and only 3.6% attended three times or more. In Study II, the prospective study, there were again no significant increases in doctor's visits, with 40.4% of premenopausal women, and 50% of peri or postmenopausal women attending a doctor in the past month.

Medication Use. The samples were also asked about medication usage (including both prescribed and nonprescribed medication). Approximately 40% of women in Study I reported taking medication and there were no differences in medication use across menopausal categories (41.9, 37.9 and 39.3% of pre, peri and postmenopausal women respectively). These results were confirmed in Study II, where the percentages were slightly higher (52.0% and 47.2% of peri/postmenopausal women).

Doctors attendance for menopause. Moving on to more menopause specific variables, women were asked if they had attended a doctor with symptoms of the menopause. Fifty three per cent of the Study I sample (45-55 years) reported that they had. This was out of a total of 344 women who responded to this question. Perhaps surprisingly there were no significant differences in the proportions of pre (47.8%), peri (59.1%) and postmenopausal (48.7%) women attending their doctor because of symptoms viewed as being to do with the menopause. There was however a higher level of reported attendance by perimenopausal women. In the prospective study fewer women, 25.7% of premenopausal women and 27.8% of peri/postmenopausal women, said that they attended the doctor because of the menopause. Again the difference was not significant.

HRT use. Within the 45-55 age range 7.1% (n=36) of women were currently taking HRT (oestrogen therapy). Of these 3.9% had been classified as premenopausal, 8.4% as perimenopausal and 7.9% as postmenopausal. As expected more peri and postmenopausal women were taking HRT but the group differences did not reach statistical significance.

(a) Characteristics of women seeking medical help

One-way analyses of variance and chi-square tests were used to compare subgroups of women aged 45-55 years who had (n=192) and who had not (n=318) attended a doctor in the past month. The groups were compared on psychosocial and health variables as well as symptom reports and beliefs about the menopause. The variables which significantly discriminated between these subgroups are presented in Table 44.

Table 44

Characteristics of women seeking medical help in past month.
Results of ANOVA and Chi-square tests are included (n=510)

Demographic/Psychosocial

Not working outside the home (X2=7.27; df=1; p<.007)

Gynaecological

Pre or perimenopausal (X2=7.33; df=2; p<.02)
Menstruating regularly (X2=8.45; df=1; p<.003)
Suffered from PMT (X2=3.55; df=1; p<.05)
Currently taking HRT (X2=6.14; df=1; p<.01)

General Health

Poor/fair general health ratings (X234.68; df=2; p<.000)
General health rated worse than others (X2=23.06; df=2; p<.000)
More future health worries (X2=10.98; df=1; p<.0009)
Report more current stress (X2=15.26; df=1; p<.0001)
Take more medication (X2=93.96; df=1; p<.000)

Hypochondriasis

Bodily preoccupation (X210.96; df=2; p<.0004)
Disease conviction (X27.57; df=1; p<.005)

Symptom Reports

Depressed mood (F=16.6; df=1,508; p<.0001)
Somatic symptoms (F=6.45; df=1,508; p<.01)
Anxiety/fears (F=10.45; df=1,508; p<.0001)
Sleep problems (F=7.97; df=1,508; p<.004)
Difficulty coping with symptoms (X2=7.97; df=1; p<.004)

Stereotypes, beliefs and expectations

Specific beliefs (n=83):
The menopause marks the beginning of old age
(X2=4.38; df=1; p<.03)

The main variables associated with seeking medical help were negative evaluations of one's own general health and current psychological and somatic symptoms. In addition these women reported having greater difficulty in coping with symptoms. Not surprisingly

hypochondriacal concerns were also associated with medical attendance. Medical attenders were less likely to be employed and tended to be still menstruating, ie. premenopausal. Only one cognitive variable discriminated between the subsamples. Medical attenders were more likely to believe in an association between the menopause and the ageing process. There was a nonsignificant tendency ($p<.08$) for medical attenders to report being under stress.

Secondly, comparable analyses were performed to examine the characteristics of women who reported having attended a doctor because of the menopause. These were not specifically menopause clinic attenders but women who had (at any time) visited a doctor, such as general practitioner, and discussed symptoms felt to be associated with the menopause. Not all women responded to this question, presumably those who did not consider themselves peri or postmenopausal felt that it was not applicable. Thus the sample size was 344. The results are shown in Table 45. By comparing Tables 44 and 45 it is clear that women attending a doctor in the past month and women having attended a doctor because of the menopause, shared negative health evaluations, hypochondriacal concerns, experience of emotional and somatic symptoms and difficulty coping with symptoms. Both helpseeking groups tended to be still menstruating and reported past PMT.

Certain variables however appeared to be 'menopause specific' in that they characterized women bringing 'menopausal problems' to the doctor from general problems. These variables included having had children, reports of vasomotor symptoms, sexual problems, sleep problems and rating the menopause as worse than expected. Although a belief about the menopause, concerning ageing, characterized general

Table 45

Characteristics of women reporting medical attendance because of symptoms associated with the menopause. Results of ANOVA and chi-square tests are included (n=344)

Demographic/Psychosocial

Having had children (X2=8.63; df=1; p<.003)

Gynaecological

Menstruating regularly (X2=4.38; df=1; (p<.03)
Suffered from PMT (X2=25.67; df=1; (p<.0000)
Currently taking HRT (X2=22.15; df=1; p<.0000)

General Health

Poor/fair general health ratings (X2=20.26; df=2; p<.000)
General health worse than others (X2=8.17; df=2; p<.01)
More future health worries (X25.41; df=1; p<.02)
Visited doctor in past month (X2=23.26; df=1; p<.000)
Taking medication (X2=12.96; df=1; p<.0003)

Hypochondriasis

Bodily preoccupation (X2=42.27; df=2; p<.000)
Disease phobia (X2=9.05; df-2; p<.01)
Disease conviction (X2=7.27; df=1; p<.007)

Symptom Reports

Depressed mood (F=13.37; df=1,342; p<..0003)
Somatic symptoms (F=17.88; df=1,342; p<.0000)
Vasomotor symptoms (F=17.36; df=1,342; p<.0000)
Anxiety/Fears (F=50.38; df=1,342; p<.0000)
Sexual problems (F=3.75; df=1,120; p<.05)
Sleep problems (F=8.91; df=1,342; p<.003)
Difficulty coping with symptoms (X2=10.88; df=1; p<.001)

Stereotypes, beliefs and expectations

Menopause rated as worse than expected (X2=42.5; df=2; p<.000)

Specific beliefs (n=83):
The menopause is an experience that does depend on your attitude of mind (X2=6.32; df=1; p<.01)
The menopause is psychologically upsetting (X2=4.83; df=1; p<.02)

medical attenders, those women attending for the menopause were more likely to believe that (i) experience of the menopause does not depend on ones' attitude of mind and (ii) that the menopause is psychologically upsetting.

(b) Characteristics of women taking medication

The characteristics of women currently taking prescribed or non-prescribed medication are shown in Table 46. These women tended

Table 46

Characteristics of women currently taking medication.
Results of ANOVA and chi-square tests are included (n=510)

Demographic/Psychosocial

Not working outside the home (X2=5.59; df=1; p<.01)

Gynaecological

Suffered from PMT (X2=5.59; df=1; p<.01)

General Health

Poor/fair health ratings (X2=30.29; df=2; p<.000)
General health worse than others (X2=21.65; df=2; p<.0000)
More future health worries (X2=3.76; df=1; p<.05)
Current illness (X2=53.54; df=1; p<.000)
Overweight (self-rating) (X2=4.22; df=1; p<.03)
Doctors visits in past month (X2=93.96; df=1; p<.000)
Taking HRT (X2=33.0; df=1; p<.000)

Hypochondriasis

Bodily preoccupation (X2=18.72; df=2; p<.0001)

Symptom Reports

Depressed mood (F=6.56; df=1,508; p<.01)
Somatic symptoms (F=10.31; df=1,508; p<.001)
Sleep problems (F=12.03; df=1,508; p<.000)

Stereotype, expectations, beliefs

to have poor evaluations of their own health, to view themselves as currently ill and to report being depressed and having somatic and sleep problems. They were also less likely to be working outside the home and tended to view themselves as being overweight. No cognitive factors particularly characterized women currently taking medication.

Table 47

Characteristics of women currently taking HRT (Oestrogen therapy) (n=36) compared with non HRT users (n=474)

Demographic/Psychosocial

Gynaecological

General Health

Visited doctor in past month ($X^2=6.14$; df=1; $p<.01$)
Visited doctor for menopause ($X^2=38.90$; df=1; $p<.000$)

Hypochondriasis

Symptom Report

Vasomotor symptoms ($F=4.71$; df=1,508; $p<.03$)

Stereotypes, expectations, beliefs

Menopause rated as being worse than expected ($X^2=30.07$; df=2; $p<.000$)

Next, the small sample of women currently taking HRT (oestrogen therapy) (n=36) were compared to the larger sample of non HRT users to discover whether any specific factors characterized these women. The results are shown in Table 47. No demographic or

psychosocial factors were associated with HRT use. These women were more likely to report having vasomotor symptoms. However the main factors characterizing HRT users were attending their doctor with symptoms felt to be associated with the menopause and viewing their menopause as being worse than they expected.

In summary, being peri or postmenopausal was not associated with increased medical helpseeking behaviour (in terms of doctor's visits in past month or general medication use). In fact women who were still menstruating were more likely to seek medical help. Women seeking medical help and currently using medication showed similar characteristics. They tended to have negative health evaluations, more hypochondriacal beliefs and to report emotional and somatic symptoms. Both groups were less likely to be employed outside the home and reported suffering from PMT in the past. The causal relationship between these latter variables and helpseeking behaviour is unclear.

Approximately half of the sample reported that they had attended the doctor with symptoms of the menopause. Surprisingly pre, peri and postmenopausal women did not differ in this respect. Medical attenders for the menopause had characteristics in common with those women attending the doctor for other reasons, but in addition they tended to have had children, to have vasomotor, sexual and sleep problems and had specific beliefs about the menopause. Total attitude scores did not differentiate groups but individual items, concerning the extent to which the menopause is dependent on one's attitude of mind, and the psychological impact of the menopause did discriminate between women who attended doctors with 'menopausal symptoms' and

those who did not. Women who believed that the menopause marks the beginning of old age were more likely to visit their doctors generally, and not specifically for the menopause. Stereotyped beliefs were not associated with helpseeking behaviour. However women attending doctors for the menopause did rate their menopause as being worse than they had expected.

Whether women were currently taking HRT or not appeared to depend more upon whether they had attended their doctor with menopausal symptoms than upon psychosocial and general health variables. HRT users did report having more vasomotor symptoms. This finding suggests that despite treatment these women were still symptomatic in this respect.

In the following study women referred to a specialist menopause clinic were compared with non-clinic attenders in order to investigate further the determinants of helpseeking behaviour in women aged 45 to 55 years.

2. COMPARISON OF MENOPAUSE CLINIC AND NON-CLINIC SAMPLES

(a) METHOD

In this study a menopause clinic sample was compared with the general non-clinic sample which was the sample described in Study I. To avoid repetition the reader is referred to Study I for details of subjects and methods relevant to the general non- clinic sample.

(i) Subjects

The clinic sample used in this study were new cases referred to the Menopause Clinic at Kings College Hospital. Two hundred and

sixty five women were sent questionnaires. They were either self referred or referred by their general practitioner or hospital doctor. No age criteria were set since the nature of this sample was of interest.

(ii) Materials and Procedure

The Women's Health Questionnaire (Appendix 1) was used to elicit information about demographic characteristics, psychosocial factors, general health and symptom reports as well as cognitive factors. The WHQ was sent to 265 women who had been referred to the Menopause Clinic at Kings College Hospital. Both versions of the WHQ, that is including stereotype questions and the global attitude scale, were used in order to provide data for each variable. They were sent by the clinic nurse with details of their initial appointment and were completed before their initial visit. This procedure was carried out to avoid responses being influenced by information gained at the medical consultation. Women were asked to complete the questionnaire just before their visit and bring it to their initial appointment. The questionnaires were sent out during the months between March and December 1983. Consecutive new referrals were sent questionnaires, however several weeks between these dates were missed out because of administrative problems, such as staff changes and holidays.

The Menopause Clinic offered information, advice, gynaecological and general health screening as well as hormonal assessments. HRT (oestrogen therapy) was the main form of treatment offered. Details of menopausal status were available from the clinic nurse who noted the menopausal status on the basis of menstrual history before consultation with the doctor.

(b) RESULTS

The results of this study are presented in three sections. First the menopause clinic sample will be described. Secondly this sample will be compared to the non-clinic sample, using the 45-55 age band for both samples. Thirdly discriminant function analyses were carried out to assess which groups of variables best discriminate between clinic and non-clinic attenders.

(i) Sample characteristics

Two hundred and two women completed and returned questionnaires out of a possible 265, representing a response rate of 76.2%. The form of the questionnaire containing the stereotype question was completed by 62.4% (n=126) of the sample and the attitude scale by 37.6% (n=76) of the sample. There were no significant differences between these subsamples on any demographic, psychosocial, health or symptom variables.

Sample characteristics are presented in Table 48. The mean age of the sample was 50 years. However there was a wide age range. The standard deviation was similar to that of the non clinic total sample (n=850) being approximately 5 points. The sample was fairly evenly distributed in terms of socioeconomic status. The proportions of women who had had children, who were employed and who were married were similar to that of the general non-clinic sample (see Table 13 p. 143). A greater proportion of women had had a hysterectomy and were already taking HRT before attending the menopause clinic, presumably prescribed by their general practitioner.

In view of the differences in age range between the clinic and non-clinic samples group comparisons were made using the 45 to 55 age ranges for both samples.

Table 48

Characteristics of Menopause Clinic Sample (n=202)

Demographic/Psychosocial Information

Age: Mean (s.d.): 49.55 (s.d. 5.30) years
Range: 35-63 years

Marital Status: Single 4.5%
Married 72.3%
Divorced/separated 13.8%
Widowed 9.5%

Children: Having had children: 86.6%

Socioeconomic Status: Social classes I, II, IIIa: 53.5%
Social classes IIIb, IV, IV: 42.6%
Dk 4.0%

Employment: Full-time employment: 37.4%
Part-time employment: 33.9%
Total employed: 71.3%

Gynaecological Information

Menopausal status: Pre: 15.3%
Peri: 19.3%
Post: 65.3%

Still menstruating: 38.1%
Having had a hysterectomy: 22.8%
Currently taking HRT: 19.8%

(ii) Comparison of menopause clinic and non-clinic samples

In order to examine medical helpseeking behaviour in women undergoing a natural menopause, those women who had had a hysterectomy (n=31) and those already taking HRT (n=33) were excluded. The narrower age criteria (45-55 years) was used in order to remove age differences between the samples. Women within this age group were the main focus of the studies already presented. Eighty five women formed the comparison clinic sample and 474 the non-clinic sample.

One way analyses of variance and chi-square tests were used to

Table 49

Comparison of menopause clinic and non-clinic attenders on demographic, psychosocial and health variables

	Clinic samples n=85	Non-clinic samples n=474	Significance level
(i) Demographic/psychosocial variables			
Age Mean (s.d.)	49.27 (2.89)	49.64 (2.70)	ns
Marital Status			
Single:	1.2%	6.3%	
Married:	80.2%	83.1%	X^2=7.39; df=2; p<.02
Divorced/separated:	13.6%	8.3%	
Widowed:	5.0%	2.2%	
Socioeconomic Status			
Social classes I, II, IIIa:	60%	55.5%	ns
IIb, IV, V:	40%	44.5%	
Employment			
Total employed:	68%	72.2%	ns
Children			
Having had children:	87.2%	85%	ns
Children still at home:	60.5%	57.6%	ns
Grandchildren	32.6%	32.1%	ns
Marriage			
Rated good/very good:	71.4%	81.0%	ns (p<.09)
Stress			
Currently under stress	65.3%	54.5%	X^2=4.22; df=1; p<.03

Table 49 (cont'd)

	Clinic Sample	Non-Clinic Sample	Significance Level
(ii) Gynaecological Variables			
Menopausal Status: Pre:	17.4%	26.2.	ns
Peri:	33.7%	36.7%	ns
Post:	48.8%	37.1%	ns
Suffered from PMT:	59.3%	36.1%	X^2=15.45; df=1; p<.0001
(iii) General Health			
Poor general health:	46.5%	16.1%	X^2=41.65; df=2; p<.000
Health worse than others:	26.7%	5.1%	X^2=46.52; df=2; p<.000
Future health worries:	57.0%	33.8%	X^2=15.80; df=1; p<.0001
Current illness:	29.1%	19.6%	ns (p<.06)
Past illness:	37.2%	22.6%	X^2=7.58; df=1; p<.005
Cigarette smokers:	36.0%	18.1%	X^2=13.05; df=1; p<.0003
No regular exercise:	51.2%	46.8%	ns
Overweight:	54.7%	47.7%	ns
Visit doctor past month:	88.4%	36.1%	X^2=78.64; df=1; p<.000
Currently taking medication:	64.0%	35.9%	X^2=22.73; df=1; p<.0000
Hypochondriasis (means, s.d.s)			
Bodily preoccupation:	1.79 (1.08)	0.95 (1.01)	F=47.64; df=1,557; p<.000
Disease phobia:	1.04 (1.07)	0.83 (0.96)	ns
Disease conviction:	0.58 (.74)	0.20 (.50)	F=55.63; df=1,557; p<.000
Total hypochondriasis:	4.50 (2.96)	2.51 (2.55)	F=41.62; df=1,557; p<.000
Symptom Scores (means, s.d.s)			
Depressed mood:	48.40 (28.29)	23.44 (23.36)	F=76.61; df=1,557; p<.000
Somatic symptoms:	61.17 (25.38)	38.13 (26.07)	F=50.10; df=1,557; p<.000
Vasomotor symptoms:	76.47 (35.84)	43.24 (44.06)	F=43.17; df=1,557; p<.000
Anxiety/fears:	59.80 (28.25)	35.17 (28.95)	F=53.38; df=1,557; p<.000
*Sexual behaviour:	44.64 (32.58)	29.41 (31.36)	F=9.74; df=1,557; p<.002
Sleep problems:	59.60 (34.92)	43.81 (36.53)	F=13.65; df=1,557; p<.0002
Difficulty coping with symptoms:	73.0%	29.1%	X^2=51.88; df=1; p<.0000

(*There were missing values for this factor due to incomplete responses for the clinic sample, n=85, and non-clinic group, n=270).

assess group differences as appropriate. Group means, standard deviations and levels of significance are shown in Table 49 for demographic, psychosocial, health and symptom measures.

Women attending a specialist menopause clinic were similar to non-clinic attenders in terms of age, socieconomic status, employment status, parity and menopausal status. There were significant group differences in terms of marital status. Clinic attenders were more likely to be divorced/separated or widowed and less likely to be single than non-clinic attenders. There was a non-significant tendency for those who were married to rate their relationships as less satisfactory. Clinic attenders also reported being under stress with a greater frequency than non-attenders.

The major differences between groups were in general health ratings and current symptom reports. Clinic attenders were more likely to view their current health as poor and have more future health worries. They were more likely to report having been ill in the past but not necessarily in the present ($p<.06$). The frequency of reports of past premenstrual tension were also significantly greater in clinic attenders. They reported more hypochondriacal concerns, including bodily preoccupation and disease conviction, and significantly more current symptoms on all factor scores. When the proportions of 'cases' were compared (using the cut off point .43) 47.1% of the clinic sample might be considered psychiatric cases compared with 13.6% of the non clinic sample. This difference was statistically significant (chi squ. = 52.52; df=1; $p< .0000$). In addition they reported having greater difficulty coping with symptoms experienced compared with non-clinic attenders.

In terms of health behaviour there was a greater frequency of

Table 50

Comparison of menopause clinic and non-clinic attenders on stereotypes, expectations and experience, percentages of women reporting presence of symptoms and total scores (mean s.d.s)

	Stereotype		Expectation		Experience	
	Clinic	Non-Clinic	Clinic	Non-Clinic	Clinic	Non-Clinic
	n=46	n=317	n=30	n=171	n=70	n=280
1. Psychological	52.2	59.3	6.7	25.1*	57.1	34.6
2. Vasomotor	67.4	68.5	43.3	39.1	54.3	44.6
3. Sexual	21.7	11.0	6.7	3.6	20.0	11.8
4. Menstrual	21.7	28.4	63.3	44.4	18.6	38.6**
5. Physical	58.7	47.0	26.7	29.0	67.1	56.1
6. Cognitive	10.9	4.7	0	3.5	21.4	8.2**
7. Ageing	8.7	2.2*	10.0	2.9	11.6	2.5**
8. Femininity/ Self-esteem	2.2	2.5	0	3.5	1.4	1.1
9. Positive/ Neutral	6.5	1.9	23.3	31.2	2.9	9.3
10. Sleep	8.7	1.9*	0	1.2	14.3	7.1

Significance levels of chi-square tests are shown as *($p<.05$) and **$p<.005$.

Total Scores	Clinic	Non-Clinic	Sign. Level
Stereotype:	2.58 (1.06)	2.27 (1.00)	F=3.84; df=1,361; $p<.05$
Expectation:	1.82 (0.88)	1.84 (0.91)	ns
Experience:	2.68 (1.36)	2.13 (1.17)	F=11.04; df=1,348; $p<.001$

cigarette smoking in the clinic group and, as may be expected, these women were also more likely to have visited their doctor within the past month and to be already taking medication.

Thus apart from differences in marital status and current stress reports there were few demographic or psychosocial differences. Reports of current symptoms and poor general health ratings characterized clinic attenders.

The two groups were also compared on stereotypes, expectations and reported experience of the menopause as well as specific beliefs. The results of these group comparisons are shown in Tables 50 and 51 respectively. In Table 50 the numbers of women responding to stereotype, expectation and experience questions vary because women were asked to respond to questions depending upon their own ideas about their current menopausal status. Within the 45-55 age range 46 clinic attenders completed the stereotype question. In general, women seeking medical help for the menopause had more negative stereotypic beliefs about the menopause and rated their own menopause as being more symptomatic. There were no differences in expectations. More specifically clinic attenders were more likely to mention age changes and sleep problems in their general beliefs. However they mentioned psychological, menstrual, cognitive and age changes with greater frequency when describing their own menopausal experience.

Finally the results of group comparisons for global attitude scores and specific beliefs are shown in Table 51. Within the 45-55 age range data were available for 30 clinic and 62 non-clinic attenders. The subsample completing the attitude scale from the non-clinic population was unrepresentative of the parent sample in terms of socioeconomic status (see Chapter 8, p.125). In view of this

Table 51

Comparison of clinic and non-clinic attenders on scale of 10 specific beliefs. Percentages of women in agreement with statements are shown.

Beliefs (stated in brief)	Clinic sample n=30	Non-clinic sample n=62	Sign. Level	Sign. level controlling for social class
1. Does not depend upon attitude of mind	60.5	37.0	X^2=9.42; df=1; p<.002	p<.03
2. Disturbing thing, most women dread	52.6	45.4	ns	ns
3. Marks beginning of old age	34.2	24.4	ns	ns
4. Good free from periods	67.1	84.9	X^2=7.51; df=1; p<.006	p<.02
5. Women more interested in sex	22.4	33.6	ns	ns
6. Psychologically upsetting	72.4	43.7	X^2=14.26; df=1; p<.0002	p<.005
7. Enjoy sexual relations less	40.8	26.1	X^2=3.99; df=1 p<.04	ns
8. Problems with physical health	81.6	42.9	X^2=26.97; df=1; p<.0000	p<.003
9. Men less interested in wives	13.2	8.4	ns	ns
10. Pleased no longer pregnant	80.3	81.3	ns	ns
Global attitude score	4.84 (1.84)	3.23 (2.13)	F=29.19 (1,90) p<.0000	p<.000

the analyses (chi-square tests and one way analyses of variance) were repeated using statistical methods to control for the effects of socioeconomic status. Linear logistic models (Glim, 1985) were fitted to investigate the influence of socioeconomic status and group membership for individual beliefs. The detailed results of these analyses are provided in Appendix 5. Analysis of covariance (MANOVA programme, SPSS, Nie & Hull, 1981) was carried out for global attitude scores and the results shown in Table 52. The results of these additional analyses are included in Table 51 in terms of significance levels for purposes of comparison.

Table 52

Menopause clinic and non-clinic group differences in global attitude scores controlling for socioeconomic status

Source of variance	df	Sums of Squares	F-ratio	Sign. Level
Socioeconomic status	11	3.94	.94	ns
Group given socio-economic status	1	110.88	26.55	p<.000
Interaction	1	2.22	.53	ns
Error	88	747.34	-	-

Menopause clinic attenders in general had a more negative attitude to the menopause, as assessed by global attitude scores than non-attenders (see Table 51). This was still the case after controlling for the effects of socioeconomic status. Considering individual beliefs, the main differences were in beliefs about the physical and psychological impact of the menopause. Significantly more clinic attenders believed that psychological and physical

problems occurred. In addition clinic attenders were less likely to believe that experience of the menopause depends upon one's attitude of mind and less likely to view their lack of menstruation as positive. Clinic attenders were also more likely to believe that there would be changes in sexual enjoyment. However this latter belief (7) did not remain significant after controlling for the effects of socioeconomic status, while the former three beliefs (1, 4, 6 & 8) did remain significant.

In summary as well as differing in marital status, ratings of current stress and general health and symptom reports, clinic attenders had more negative beliefs about the menopause than non-clinic attenders. These included beliefs that most women experience changes in ageing and sleep patterns during the menopause, and beliefs that the menopause brings psychological and physical changes and is not dependent upon one's attitude of mind.

(iii) Predicting menopause clinic attendance

A series of discriminant function analyses were carried out to clarify which combinations of variables would best discriminate between menopause clinic and non-clinic attenders. Firstly 15 variables were selected which were shown to differentiate between clinic and non-clinic samples in the preceding section. These were entered into a stepwise discriminant function analysis. The results are presented in Table 53. A combination of 10 variables correctly classified 74.47% of women into clinic and non-clinic groups. When the five variables which had the highest discriminant functions were selected and re-entered into the analysis alone (shown in brackets in Table 53), these variables - depressed mood, vasomotor symptoms,

disease conviction, difficulty coping with symptoms and anxiety/fears - together correctly classified 76% of the sample.

Table 53

Stepwise discriminant function analysis between clinic (n=85) and non-clinic (n=474) attenders using measures of general health, current symptom reports, marital status and stress ratings

(All variables included were significant at the p<.0000 level)

In brackets are the results when the analysis was repeated using only the top five variables.

Variables	Wilks lambda	Standardized discriminant functions
Depressed mood	.81 (.82)	.33 (.29)
Vasomotor symptoms	.74 (.71)	.37 (.36)
Disease conviction	.71 (.69)	.29 (.30)
Difficulty coping with symptoms	.69 (.75)	.29 (.41)
Anxiety/Fears	.67 (.67)	.31 (.30)
Marital Status	.66	.18
Smoking	.66	.14
Premenstrual tension	.66	-.13
Past illness	.65	.13
Disease phobia	.65	-.12

Correctly classified 74.47 (76.28%)

In order to assess the effects of attitudes and beliefs two further analyses were carried out. Firstly the preceding analysis was repeated adding the stereotype variable but this inclusion did not add to the discriminating power of the existing variables. Secondly the analysis was repeated using the attitude subsamples to investigate

Table 54

Stepwise discriminant function analyses between clinic (n=30) and non-clinic (n=62) attenders using (i) 5 variables and (ii) 5 variables and 10 beliefs

(i) 5 variables

Variables	Wilks lambda	Standardized discriminant Functions
Depressed mood	.69	.23
Vasomotor symptoms	.61	.38
Anxiety/fears	.58	.40
Disease conviction	.56	.32
Difficulty coping with symptoms	.54	.25

Correctly classified 81.52%

(ii) 5 variables & 10 beliefs

Depressed mood	.69	.30
Vasomotor symptoms	.61	.55
Anxiety/fears	.53	.61
Disease conviction	.43	.30
Beliefs: 1. attitude of mind	.38	.24
2. disturbing /dread	.36	-.16
3. old age	.48	-.39
4. good free periods	.45	-.58
5. more sexual interest	.41	-.36
7. enjoy sex less	.38	-.29
8. physical problems	.37	.18
9. men less interested	.56	-.41
10. pleased no longer pregnant	.40	.33

Correctly classified 92.39%

whether the inclusion of individual beliefs would increase classification rates over and above those provided by the five key variables already described. The results of the analysis (i) forcing in the five key variables first and (ii) adding the scale of 10 beliefs are presented in Table 54. Adding the scale of beliefs to the five key variables added 10% to the classification rate which meant that in combination these variables correctly classified 92.39% of the sample into clinic and non-clinic attenders.

Finally psychological variables (depressed mood, anxiety/fears, disease conviction, difficulty coping) and biological variables (vasomotor symptoms) were compared, using stepwise discriminant function analyses, to investigate which type of variables might best discriminate between menopause clinic and non-clinic attenders. The results are shown in Table 55. Psychological variables correctly classified 76% of the sample which was a higher classification rate than that obtained relying on reports of vasomotor symptoms alone (67%).

Table 55

Stepwise discriminant function analyses between clinic (n=85) and non-clinic (n=474) attenders using (i) psychological variables, and (ii) biological variables

	Variables	Wilks lambda	Standardized discriminant functions
(i)	Depressed mood	.82	.35
	Anxiety/fears	.75	.41
	Disease conviction	.72	.29
	Difficulty coping with symptoms	.70	.47
	Correctly classified 75.98%		
(ii)	Vasomotor symptoms	.92	1.0
	Correctly classified 66.91%		

(C) DISCUSSION

The results will be briefly summarized here. Hypotheses, previous research findings and methodological problems will be discussed in more detail in the final discussion (Chapter 13).

Helpseeking behaviour was examined drawing upon the findings of a large cross-sectional survey and a prospective study as well as a comparison of menopause clinic and non-clinic samples of women aged 45-55 years. Peri and postmenopausal women were no more likely to seek medical help (doctors visits in past month) nor to take more medication than premenopausal women. These findings are consistent with results of recent North American studies (Kaufert, 1980; McKinlay & McKinlay, 1986). Helpseeking behaviour was associated with negative evaluations of one's own health, hypochondriacal concerns and reports of emotional and somatic symptoms. These are health variables which have been found to characterize helpseeking behaviour in general (Mechanic, 1983).

Considering 'menopause specific' helpseeking behaviour, approximately half of the general (non-clinic) sample reported that they had attended a doctor such as G.P. or hospital doctor, with symptoms of the menopause. Responses to this question were inevitably retrospective and prone to errors of recall. Pre, peri and postmenopausal women were equally as likely to report having attended a doctor because of the menopause. It is possible that premenopausal women attended for information about the menopause rather than treatment for specific symptoms. Overall those seeking medical help for the menopause shared general characteristics with those seeking

medical help for general problems. However in addition those seeking medical help for the menopause were more likely to have had children, to report vasomotor, sexual and sleep problems. Certain negative beliefs, but not stereotypes beliefs, about the menopause were more common in those seeking medical help. The links between certain symptom reports and specific beliefs about the menopause and helpseeking behaviour are understandable. The association between childbearing and going to the doctor for the menopause may be explained by the fact that in the cross-sectional survey women who had had children reported more somatic and psychological symptoms.

Women who were currently taking hormone replacement therapy did not differ from other women in terms of demographic, health or psychosocial factors. The main factors associated with HRT use was having attended a doctor with symptoms of the menopause and having vasomotor symptoms ie., being perhaps more to do with the health care system than characteristics of the individual. In general the prospective results confirmed those of the cross-sectional study.

The characteristics of women attending a specialist menopause clinic were investigated. The prime treatment offered by this clinic was hormone replacement therapy. The age range of these women was considerable (35-63 years). A greater proportion of this sample had had hysterectomies (both with and without oophorectomy) and were already taking HRT before their initial clinic appointment. Comparison of menopause clinic and non-clinic samples was carried out using a narrower age range (45-55 years).

In common with general medical attenders menopause clinic attenders rated their own health poorly, had hypochondriacal concerns and reported having current emotional and somatic symptoms.

Approximately half of the clinic attenders may be considered as "psychiatric cases". These rates are very similar to those found for women attending general gynaecology clinics (Ballinger, 1977; Worsley et al, 1977) and to those assessed in medical and surgical outpatient samples (Goldberg, 1972). Clinic attenders reported having had difficulty coping with symptoms, reported being under stress and having had past menstrual problems. In addition to these general factors menopause clinic attenders were more likely to have been divorced/separated or widowed (fewer were single), to smoke cigarettes and to report current vasomotor symptoms and sexual problems. Divorced, separated and widowed women may attend their doctors to satisfy a latent need for personal contact (Antonovsky, 1972; Mechanic, 1983). However it is not clear why these women would be more likely to report "menopausal symptoms" to the doctor. These events may have occurred coincidentally or some women may have been attributing the changes associated with grief to the menopause. Clinic attenders may be more likely to be cigarette smokers as a response to greater symptom experience, ie. as an attempt to reduce actual distress. However there may be characteristics shared by both medical attenders and cigarette smokers, such as a tendency to rely on external help.

Clinic attenders rated their menopause as having been worse than they had expected and had more negative stereotypic beliefs about the menopause. Beliefs that the menopause does not depend upon one's attitude of mind and that psychological and physical symptoms occur during the menopause were more common amongst clinic attenders. These beliefs were similar to those held by women who had at some time attended a doctor for "menopausal problems". The belief that the

menopause does not depend upon one's attitude of mind may be interpreted as meaning that the menopause cannot be controlled by oneself since Sledmere (1983) found that this belief was negatively associated with internal health locus of control (Wallston et al, 1987). Beliefs that one is in control of illnesses in general have been found to be associated with positive adjustment (Taylor, 1983). It was not possible to clarify the relationships between beliefs and symptoms experienced during the menopause in this study. Overall, specific beliefs about the menopause appeared to be stronger predictors of medical helpseeking behaviour than stereotyped beliefs.

Currently reporting psychological symptoms (depressed mood and anxiety), and vasomotor symptoms, having difficulty coping with these symptoms and believing that one has a disease were the variables which best discriminated between women who attend menopause clinics and those who do not. Including the scale of specific beliefs improved the classification rate of these five variables, suggesting that beliefs about the menopause were associated with helpseeking behaviour even after the effects of mood have been held constant in the stepwise discriminant function analysis. Finally menopause clinic attendance could be predicted more accurately on the basis of psychological symptoms rather than by biological symptoms (vasomotor symptoms) alone. It should be noted that the classification rates reported from these discriminant function analyses are probably higher than would be expected if the analyses were repeated on on additional samples, since the method used optimizes the classification rates. However it is comparison between classification rates rather than absolute rates which were the major interest in this study.

In conclusion the results of this study suggest that vasomotor

symptoms, psychological distress and certain beliefs about the menopause and beliefs about current disease best characterize menopause clinic attenders. The possible causal relationships between reports of psychological distress and physical symptoms (such as hot flushes) in determining illness behaviour are complex (Craig & Van Natta, 1983; Mechanic, 1983). The current results are compatible with a model of helpseeking behaviour which includes the interaction of biological, cognitive and psychosocial factors.

CHAPTER 13

DISCUSSION

The main findings are presented in relation to hypotheses and past research. In subsequent sections theoretical implications of these findings are discussed and a psychological model of the menopause proposed. In the final sections the discussion will focus on the problems in research design and suggestions for future research.

(i) SUMMARY OF FINDINGS

Hypothesis 1: Vasomotor symptoms increase in peri and postmenopausal women

This hypothesis was supported by the results of both cross-sectional and prospective studies. There was an increased prevalence of hot flushes in peri and postmenopausal women. In both studies 55% of peri and postmenopausal women reported this symptom. There is general consensus that vasomotor symptoms increase in menopausal women (McKinlay & Jefferys, 1974; Thompson et al, 1973; Greene, 1976; Kaufert & Syrotuik, 1981), however the percentage of women reporting such symptoms in this study was lower than that of other British studies, such as McKinlay & Jefferys, 1974 (75%) and Thompson et al, 1973 (74%). There appeared to be a base rate of hot flush reporting; between 15 and 25% of women who were menstruating regularly reported this symptom in the cross-sectional and prospective

studies respectively.

Hypothesis 2: Perimenopausal women report no more psychological or somatic symptoms than premenopausal women

This hypothesis was not confirmed. The prevalence rates for depressed mood and sleep problems were greater in peri and postmenopausal women compared with those not yet menopausal. There was a nonsignificant tendency for somatic symptoms to increase in the cross-sectional survey but this was not found in the prospective study.

The increased prevalence of depressed mood was evident in both cross-sectional and prospective studies. There were also increases in the proportion of 'psychiatric cases' as assessed by comparison with the GHQ (Goldberg, 1972). The increase in depressed mood affected approximately 10% of peri and postmenopausal women and was characterisized by reduced enjoyment and well being. Irritability was more common in perimenopausal women and was included in the depressed mood symptom group. These results may be taken to support the findings of Jaszmann et al (1969), Ballinger (1975), Bungay et al (1980) and McKinlay & McKinlay (1986) but not those of the majority of recent epidemiological research by McKinlay and Jefferys (1974), Thompson et al (1973), Hallstrom (1973), Kaufert & Syrotuik (1981) and Mikkelsen & Holte (1982). Jaszmann et al (1969), Ballinger (1975) and Bungay et al (1980) reported perimenopausal increases in minor symptoms. The increases in irritability are consistent with this work but the current findings also revealed a more permanent increase in depressed mood in both peri and postmenopausal women. In a recent large cross-sectional study carried out in Massachusetts (McKinlay &

McKInlay, 1986), similar increases in psychological symptoms appeared to exist. However these authors did not assess the significance of these group differences.

Few studies have found increased prevalence of psychiatric disorder during the menopause. Although an increase in 'caseness' was found in the current studies, based on comparison with GHQ scores, this should be considered as a tentative finding since interview methods were not used. In addition the nature of the individual items reported to increase, suggested general dysphoria and irritability rather than biological or more severe symptoms of depression.

The symptom questionnaire developed for use in this study enabled a more detailed separation of psychological and somatic symptoms. The increased prevalence of psychological symptoms was specific to depressed mood. Perimenopausal women did not report more anxiety. Since methodological improvements were made in the light of the problems with earlier studies, such as disguising the purpose of the study, using a questionnaire with known psychometric properties and controlling for age effects, the discrepancy between these results and those of earlier studies cannot easily be explained by methodological errors. It is possible that samples studied may differ in experience of the menopause. Given that the current results regarding increases in depressed mood were evident in both the cross-sectional and prospective studies this may be considered to be a reasonably strong finding.

Hypothesis 3: Postmenopausal women report (a) more sleep disturbance and (b) more sexual problems than pre or perimenopausal women

Both these hypotheses were partially supported.

(a) Significantly more sleep disturbance, in particular difficulty in getting off to sleep, was reported by peri and postmenopausal women in both the cross-sectional and prospective studies. While both age and menopausal status influenced sleep, menopausal status appeared to be the stronger determinant of sleep problems. These symptoms formed a separate grouping in the factor analytic study suggesting that information may be lost by grouping them with the psychological or somatic symptoms, which has been the case in most previous studies.

(b) The results relating to sexual changes were equivocal. The global sexual factor scores increased significantly in peri and postmenopausal women in the cross-sectional survey. This increase was accounted for by a greater prevalence of vaginal dryness in postmenopausal women and a stepwise decrease in sexual interest in peri and postmenopausal women. There were however no differences in overall sexual satisfaction between groups. These results were not confirmed in the prospective study. This may have been because missing data on several items reduced the numbers available for calculation of global scores. However from inspection of the individual items no decreases in sexual interest or changes in overall sexual satisfaction were evident. A small proportion of new cases of vaginal dryness were reported by peri and postmenopausal women. Increased prevalence of vaginal dryness is generally accepted as a consequence of reduced oestrogen levels. However less than half of the sample (Study I) reported this symptom. It is possible that, because the prospective sample (Study II) were on the whole perimenopausal or recently postmenopausal, fewer cases of vaginal dryness were reported.

The decrease in sexual interest found in the cross-sectional

survey supports the findings of Hallstrom (1973) who, in a similar study, found that sexual interest decreased during the menopause after controlling for age effects. The results may be taken to suggest a reduction in sexual interest in a small proportion of women (approximately 10-15%), however this did not appear to influence women's overall satisfaction with their sexual relationships. A possible explanation of these findings could be that women have changing expectations about their sexual relationships. For example a reduction in sexual interest might be perceived as quite normal at this stage of life.

Hypothesis 4: Menopausal status is the major factor accounting for variation in experience of vasomotor symptoms.

This hypothesis was supported by the results of the cross-sectional survey; menopausal status was the strongest and only predictor of vasomotor symptoms. However only 12% of the variation in symptom experience was explained by this variable.

In the prospective study reports of vasomotor symptoms before the menopause and reports of past premenstrual problems accounted for 37% of the variation in peri and postmenopausal vasomotor symptom reports. It was not possible to compare the relative contributions of these factors and menopausal status in the prospective study. Few predictors of vasomotor symptoms have previously been found apart from past psychiatric disorder (Hallstrom, 1973) and women's own income level (Mikkelsen & Holte, 1982).

Hypothesis 5: Psychological variables are the major factors accounting for variation in experience of psychological and somatic symptoms in

menopausal women.

Psychological variables were the major factors accounting for variation in somatic symptoms, anxieties and fears and sleep problems, based on the results of the cross-sectional survey. Depressed mood was accounted for by menopausal status (2%) and by socioeconomic status and having had children (2%). Thus in combination psychosocial factors may be considered to account for an equal or greater proportion of the variance in psychological or somatic symptoms than menopausal status. Specific hypotheses are addressed in line with the format of the hypotheses outlined in Chapter 6. The term 'symptoms' is used to refer to symptoms experienced during the menopause since no specific hypotheses were formulated about the nature of the symptoms. Few studies had previously examined the relationships between specific subgroups of symptoms and psychosocial factors.

(a) Women who have had past emotional problems are more likely to report symptoms

Women who were depressed before the menopause were significantly more likely to report depressed mood when they became peri or postmenopausal. Premenopausal depressed mood was the major predictor of depressed mood experienced during the menopause and accounted for 34% of the variation in symptom reports. This finding supports the general conclusions of other workers suggesting a relationship between past psychological symptoms (Hallstrom, 1973; Ballinger, 1977) and symptoms experienced during the menopause. However the current findings were based on prospective rather than cross-sectional studies using retrospective reports. Preliminary reports from the Norwegian prospective study (Holte, 1987) also suggest that previous mood state is one of the most important

predictors of symptom reports in menopausal women.

In the current study there was also a non-significant tendency for depressed mood before the menopause to be associated with reports of vasomotor symptoms during the menopause. The latter result offers some support for the findings of Hallstrom (1973) and more recently Gath et al (1987) who found associations between retrospective reports of past emotional problems and reports of vasomotor symptoms. In a preliminary report from the Massachusetts prospective study, McKinlay & Brambilla (1987) also found that depression before the menopause was associated with depression and hot flushes during the menopause. He explained this finding in terms of a tendency for depressed women to over-report symptoms, however it is theoretically possible that mood could influence hormone levels and hence experience of vasomotor symptoms.

(b) <u>Women experiencing recent stressful life events are more likely to report symptoms</u>

Women's personal evaluations of whether they were currently under stress or not were associated with depressed mood, anxiety/fears, sleep problems and changes in sexual behaviour in the cross-sectional survey. This is a relatively weak finding since the stress measure used was rather simplistic and the stressors described were not independent of mood or symptom state. Nevertheless the results do support the findings of Greene & Cooke (1980) who, using a life events score, found that although stress levels were not elevated during the menopause, they were associated generally with symptom reports.

In the prospective study premenopausal stress levels were associated with peri/postmenopausal depressed mood. However the

results of a stepwise multiple regression analysis showed that the predicted effects of premenopausal stress reduced considerably when premenopausal depression was included, suggesting that the effects of stress may be subsumed within this variable.

(c) Working class women are more likely to report symptoms than middle class women.

This hypothesis was supported by the results of the cross-sectional survey. Working class women were more likely to report more depressed mood, anxiety, somatic, sleep and sexual problems. Vasomotor symptom reports were however not class related. These findings were not confirmed in the prospective study but the trends were in the expected directions. The above results support the findings of Jaszmann (1973), Van Keep & Kellerhalls (1975) and Neugarten & Kraines (1965) but not those of Hallstrom (1973), McKinlay & Jefferys (1974) and Holte & Mikkelsen (1982). Holte & Mikkelsen (1982) found that a woman's personal income was relevant but other measures of socioeconomic status were not. They explained these findings in terms of the more egalitarian social structure of Scandinavian countries compared to other Western industrial countries. These differing findings may be explained by the different samples studied and the methods used to assess socioeconomic status.

(d) Married women are more likely to report symptoms than single women

This hypothesis was confirmed with regard to reports of depressed mood. Again these group differences were significant in the cross-sectional survey but not in the prospective study. In line with the findings of Cleary & Mechanic (1983) it was the women who had had children who reported more symptoms. Satisfaction with marriage was

also assessed. Poor marital relationship was associated with depressed mood, sleep problems and sexual problems.

(e) Divorced and widowed women are more likely to report symptoms than married or single women

Again this hypothesis was supported in that depressed mood was more prevalent in divorced, separated and widowed women in the cross-sectional survey. These findings are also consistent with Greene & Cooke's (1981) thesis that exits from the social field were predictors of symptoms but in the latter study exits predicted somatic rather than psychological symptoms.

(f) Non-working women are more likely to report symptoms than working women

Women not working outside the home were significantly more likely to report somatic symptoms and anxieties, suggesting that work might have a protective effect. These results support the findings of Prill (1964), Maoz et al (1978) and Jennings et al (1984) who examined employment and symptom reports in menopausal women. Unfortunately a distinction between unemployed women and full time homemakers was not made in the present study. Jennings et al (1984) found that symptoms were most prevalent in unemployed women than homemakers followed by employed women.

Being employed was associated with fewer somatic and anxiety symptoms in both middle class and working class women. In general, however, the effects of socioeconomic status were greater than those of employment. These results are not consistent with those of Jennings et al (1984) who found an interaction between employment and years of education (used as an index of socioeconomic status) on ratings of health.

(g) Children's presence at home will not influence reporting of symptoms

This hypothesis was not supported since having children still at home was associated with reports of somatic symptoms. These results are in line with recent conclusions about the empty nest syndrome; that children leaving home does not appear to have a major impact upon symptom reports (Krystal & Chiriboga, 1979). The current findings concur with the conclusions from a study of six national surveys (Glenn, 1975) that among women of the same age, those whose children had left home were generally more satisfied.

(h) Women who hold negative stereotyped beliefs about the menopause are more likely to report symptoms

This hypothesis was supported. Negative stereotypic beliefs held at premenopause were associated with depressed mood when these women became menopausal and explained 6% of the variation in this symptom. Negative stereotype was not associated with current mood state, that is could not be explained by the negative effects of depressed mood upon thoughts and beliefs. Although it is often assumed that social stereotypes influence symptom reports (Flint, 1975 & Kaufert, 1982b) this effect has not previously been demonstrated empirically.

(i) Women who expect to experience symptoms during the menopause are more likely to report symptoms

This hypothesis was not confirmed. Although negative expectations were associated with concurrent symptoms in the cross-sectional survey, in the prospective study they did not predict symptom experience during the menopause, suggesting that, on the whole, expectations were influenced by current mood and symptom state.

There was however a non-significant tendency for negative expectations to be associated with sleep problems. Preliminary reports from the Norwegian longitudinal study (Holte, 1987) suggest that premenopausal negative expectations were associated with postmenopausal symptoms. The way in which questions are posed was found to influence responses to questions assessing beliefs in the current study.

(j) Women who report past menstrual problems are more likely to report symptoms

Support was gained for this hypothesis from the cross-sectional findings. Reports of premenstrual tension were associated with depressed mood and anxiety, somatic symptoms, sleep and sexual problems. Holte & Mikkelsen (1982) reported similar findings of associations between psychological and somatic symptoms and past menstrual problems in their cross-sectional survey.

Being retrospective, these reports of past PMT may be biased by current emotional or symptom state. However whether accurate or not, in the prospective study premenopausal women who reported having had PMT were more likely to report vasomotor symptoms, but not psychological or somatic symptoms, when they became menopausal. Few predictors of vasomotor symptoms have previously been found. As discussed in Chapter 10, this finding may be interpreted in terms of either biological or psychological factors.

Voda (1982) found that of a small sample of 20 women with hot flushes, 8 reported a long history of premenopausal migraines and speculated that these women may have a predisposition either for thermoregulatory problems or vascular instability, or both. A psychological explanation is also possible, that attitudes to menstruation and experience of it interact thus developing

expectations about menstrual events, including the menopause, as being symptomatic or perhaps uncontrollable.

Hypothesis 6: Age, independent of menopausal status is associated with syptom reports.

In particular it is hypothesized that:

(a) Sleep problems increase with age

This hypothesis was supported but in this study the effects of age and menopausal status were confounded. When individual symptoms (difficulty getting off to sleep) were considered, the effects of menopausal status were stronger than age effects for women aged 45-55 years. For women aged 55-65 years sleep problems were associated with age.

(b) Sexual interest decreases with age

This hypothesis was not supported for women aged 45-55 years. Sexual disinterest was associated with menopausal status rather than age. However for women aged 56-65 years age was associated with reduced sexual interest.

(c) Sexual activity decreases with age

Again this hypothesis was supported for the older women (56-65 years) but not for the 45-55 year old women. Reduced levels of sexual activity may be associated with partner unavailability and partner's level of sexual interest (Davidson, 1985 & Bachmann et al, 1984).

Hypothesis 7: There are no differences between pre, peri and postmenopausal women in frequency of visits to the doctor

This hypothesis was confirmed by the results of the prospective study. In the cross-sectional survey premenopausal women

were significantly more likely to have visited a doctor in the past month. This finding provides evidence against the notion that menopausal women are high users of medical services. Approximately 40% of this sample visited their doctor in the past month. These figures are comparable to those of Kaufert (1980) and McKinlay & MacKinlay (1986) who found that approximately 20% of women pre, peri and postmenopausal women attended a doctor within the past two weeks. In the current study the majority attended only once. Kaufert (1980) also found that perimenopausal women had a regular but infrequent pattern of physician contact. Thus the results of this British study are similar to those of comparable studies being carried out in North America.

Approximately 50% of those women who defined themselves as menopausal or postmenopausal said that they had attended a doctor with problems of the menopause. These figures can be compared with Thompson et al's (1973) finding that 45% of their Scottish sample reported seeking medical help for hot flushes at some time. Van Keep (1970) reported that on average 41% of women from six European countries sought medical help. It is unclear whether these figures represent mentioning symptoms to the doctor or actively seeking medical treatment for symptoms occurring during the menopause. Kaufert & Gilbert (1986) in a preliminary report from their cross-sectional study (Manitoba) found that 54% had discussed their menopause with a physician. It is possible that these women were seeking advice and information about possible physical changes rather than specific treatments.

Hypothesis 8: There are no differences between pre, peri and postmenopausal women in overall use of medication

This hypothesis was supported by the results of both cross-sectional and prospective studies. Approximately 40% of pre, peri and postmenopausal women reported taking medication (prescribed and non-prescribed) in the cross-sectional study and approximately 50% in the prospective sample.

There are no comparable British studies of medication use. McKinlay & McKinlay (1986) in the Massachusetts study similarly found no differences in prescribed and non-prescribed medication use, however there was a non-significant tendency for perimenopausal women to use more non-prescribed medication.

Approximately 8% of peri and postmenopausal women were currently taking oestrogen therapy which is comparable with the 6% found in the Massachusetts study (McKinlay & McKinlay, 1986). The figures from the Manitoba study (Kaufert & Gilbert, 1986) were higher with 9 and 17% of pre and peri/postmenopausal women respectively taking oestrogen therapy. Overall the percentages are relatively low compared with the numbers of women mentioning symptoms to the doctor which they associated with the menopause.

Hypothesis 9: Psychosocial factors discriminate between women referred to a menopause clinic and non-clinic attenders

This general hypothesis was supported by the results of Study IV. The findings of the study are consistent with general findings of research and factors associated with help seeking behaviour (see Chapter 4). More detailed hypotheses are presented as outlined in Chapter 7.

(a) Menopause clinic attenders report more psychological symptoms than non-clinic attenders

Women referred to a menopause clinic reported significantly more depressed mood and anxiety, thus this hypothesis is supported. They also described having more difficulty coping with symptoms experienced and more hypochondriacal concern than a sample of non-attenders.

(b) Menopause clinic attenders are more likely to report being under stress than non-clinic attenders

This hypothesis was supported. Sixty-five per cent of the clinic sample reported being under stress compared with 55% of the non-clinic sample. The difference was statistically significant. These findings are consistent with those of Ballinger (1985) who, in a similar study recently carried out in Australia, found that responses to a life events rating scale (modified Tennant & Andrews (1976) scale) were one of the main discriminants between menopause clinic and non-clinic attenders.

(c) Menopause clinic attenders are more likely to be middle class

Contrary to commonly held beliefs that menopausal problems are a middle class phenomenon (Wilbush, 1984), this hypothesis was not supported. There were no class related differences between menopause clinic attenders and non-attenders.

(d) Menopause clinic attenders are more likely to hold negative stereotyped beliefs about the menopause than non-clinic attenders

Women about to attend a specialist menopause clinic believed that most women experienced more symptoms during the menopause than non-clinic attenders. The main group differences were in relation to beliefs about ageing and sleep problems occurring during the menopause. Stereotypic beliefs were not associated with current

symptom reports in the cross-sectional survey. No comparable studies have been carried out which have included assessments of stereotyped beliefs in menopause clinic attenders. In addition clinic attenders were more likely to believe that they had a disease - as assessed by the disease conviction subscale of the Pilowsky Hypochondriasis Scale (Pilowsky, 1967). This suggests that menopause clinic attenders may believe to a greater extent in biological models of the menopause.

(e) Menopause clinic attenders are more likely to hold certain specific beliefs about the menopause than non-clinic attenders

This hypothesis was supported. The scale of specific beliefs, when included as a possible discriminator with key symptom variables, improved the classification rate of clinic vs non-clinic attenders by 10%.

In particular they are more likely to believe that:

(i) the experience of the menopause does not depend upon one's attitude of mind

Clinic attenders were significantly more likely to agree with this statement compared with non-attenders, thus this hypothesis was supported. This finding replicates the results of Sledmere's study (1983) in which this specific belief and others were examined in a small sample of clinic and non-clinic attenders. Sledmere (1983) found that this belief was negatively associated with internal health locus of control and positively with belief in powerful others, as controllers of health, as assessed by the Multidimensional Health Locus of Control Scales (Wallston et al, 1987). Women who do not believe that experience of the menopause depends upon one's state of mind may therefore be more likely to see others or external factors as controllers of health, rather than feeling that they themselves can

influence their own experiences. Women holding this belief were more likely to have reported past PMT problems. It is possible that experience of menstrual symptoms and attitudes towards menstruation may have influenced the development of this belief.

(ii) the menopause is associated with ageing

This hypothesis was not supported using the scale of specific beliefs. However clinic attenders did spontaneously mention ageing in association with the menopause more often than non-clinic attenders in response to the stereotype question, which referred to most women's experience.

(iii) the menopause is associated with considerable symptomatology

This hypothesis was supported since clinic attenders were significantly more likely to believe that the menopause is psychologically upsetting and brings problems with physical health than non-clinic attenders. These were also the items most commonly mentioned in relation to most women's experience in response to the stereotype question.

Hypothesis 10: Vasomotor symptoms discriminate between women referred to a menopause clinic and non-clinic attenders

Clinic attenders were significantly more likely to report vasomotor symptoms than non-attenders. Unfortunately severity of hot flushes was not investigated separately in this study. Ballinger (1985) in a comparable study did not find a higher frequency of vasomotor symptom reports in clinic attenders but these women did describe their symptoms as being more severe.

Hypothesis 11: Psychological factors discriminate between menopause clinic and non-clinic attenders more accurately than vasomotor symptoms.

This hypothesis was supported. Four psychological variables - reports of depressed mood, anxiety, having difficulty coping with symptoms and hypochondriacal concern (specifically being convinced that one has a disease) - correctly classified 76% of women, aged 45-55 years, into clinic and non-clinic groups, whereas using vasomotor symptoms alone the classification rate was 67%. Ballinger (1985) also found that psychological symptoms were the most important discriminators of medical helpseeking behaviour in menopausal women.

Hypothesis 12: The dominant view of the menopause held by pre, peri and postmenopausal women is that the menopause brings negative physical and psychological changes to most women.

This hypothesis was confirmed by the results of Study I and Study II. The most commonly held beliefs about the experience of most women during the menopause were of psychological, physical changes and occurrence of vasomotor symptoms. The women in this sample thus held beliefs which may be consistent with a medical view of the menopause in which physical and emotional changes may be expected. Asking questions, focussing on issues of disease vs normal development, Lieblum & Swartzman (1983) also found that the majority of pre, peri and postmenopausal women in their North American sample had a medical view of the menopause.

Hypothesis 13: The level of symptoms reported by women during the menopause is lower than that expected from stereotyped beliefs.

This hypothesis was supported. Comparison of stereotypic

beliefs about specific changes expected with the percentages of women reporting symptoms during peri and postmenopause, suggested that women appear to overestimate the extent of symptoms. This appeared to be the case particularly for physical symptoms. There have been few studies in this area. Neugarten et al (1963) concluded that the experience of the menopause appeared to modify negative attitudes to the menopause in a cross-sectional study; a finding which also suggested that beliefs were more negative than experience.

Hypothesis 14: Women hold certain beliefs about the menopause which reflect negative consequences.

In particular it is hypothesized that:

(a) women believe that the menopause is associated with ageing

This hypothesis was not supported. Approximately one quarter of pre, peri and postmenopausal women believed that the menopause marks the beginning of old age and few mentioned ageing in response to the stereotype question. The same proportion held this belief in Van Keep's (1970) sample of British women studied in a survey of attitudes to the menopause. Those women who did believe that ageing occurs in most women during the menopause, were more likely to seek medical help for problems at this time.

(b) women believe that the menopause is psychologically upsetting.

This hypothesis was supported since 43% of pre, peri and postmenopausal women held this belief. This figure is lower than the 64% found by Van Keep in 1970.

(c) women believe that the menopause brings physical changes

Again this hypothesis was supported with 44% of women agreeing with this statement. Comparable figures from Van Keep's (1970) study

were 66%.

(d) <u>women believe that the menopause brings reduced sexual enjoyment</u>

This hypothesis was not supported in that approximately one third of the sample (Study I) agreed with this statement while one third also believed that sexual interest increases at the menopause. In the European survey, a similar proportion of women (26%) agreed with this statement (Van Keep, 1970). It seems reasonable to conclude that women believe that changes in sexual behaviour may occur but not necessarily in a negative direction.

<u>Hypothesis 15: Women hold certain beliefs about the menopause which reflect relief</u>

In particular it is hypothesized that:

(a) <u>women are pleased to cease menstruation during the menopause</u>.

This hypothesis was supported, on average 86% of pre, peri and postmenopausal women agreed with this statement. This figure compares with 79% reported by Van Keep (1970) for British women, and 70-70% reported by women in Massachusetts (McKinlay & McKinlay, 1986).

(b) <u>women are pleased to no longer become pregnant following the menopause</u>

Again this hypothesis was confirmed, 81% of the sample (Study I) agreed with this statement which is a similar proportion to the 77% reported by Van Keep in 1970. In general the above findings support those of Van Keep (1970), McKinlay & McKinlay (1986) and Lieblum & Swartzman (1983) that women concurrently hold both negative and positive beliefs about the menopause, suggesting that global attitude scales may not reflect the range and complexity of beliefs about the menopause. Clearly the type of questions posed influence the results.

In this study more positive beliefs were apparent in response to specific statements compared with responses to open questions. It appears that the nature of beliefs held by British women have not changed markedly since 1970. Both positive beliefs and beliefs which appear to be consistent with a medical view of the menopause were evident. However the women in the current sample were slightly more optimistic in their beliefs about the emotional and physical sequelae of the menopause.

Hypothesis 16: Women who have experienced hysterectomy (without oophorectomy) are likely to report more symptoms than women experiencing a natural menopause.

This hypothesis was confirmed in that the 12% of the cross-sectional sample, who had had a hysterectomy, reported significantly more somatic symptoms and changes in sexual behaviour than women who had not had a hysterectomy. Since all women in this study had ovaries it is not possible to comment on the impact of oophorectomy. These results are in agreement with a recent report from a North American survey. McKinlay & McKinlay (1986) found that women who had had a hysterectomy were more symptomatic than any other menopausal group. This was the case for those who had or who had not also experienced oophorectomy. The percentage of hysterectomies performed in Massachusetts was considerably higher, being 30% compared with 10% in the current sample of women living in S.E. England. The rates of hysterectomy performed in North America and Australia are estimated to be twice the rates of those performed in Britain (Van Keep et al, 1983). Such cultural differences in medical practice, probably motivated by financial reward, may well have important

influences upon the way the menopause is perceived; for example as a medical event or as a normal developmental process.

(ii) THEORETICAL IMPLICATIONS

The results of the present research have relevance to the theoretical debates concerning causal explanations of psychological and somatic symptoms experienced during the menopause. Since certain types of symptoms (depressed mood, sleep problems and vasomotor symptoms) were consistently reported more frequently by peri and postmenopausal women, in both the cross-sectional and prospective studies, particular explanations for these results are required. In this discussion the focus will be primarily upon depressed mood since most controversy surrounds this topic.

The evidence supporting different theoretical explanations of depressed mood in peri and postmenopausal women will be discussed under the broad headings of biological and psychosocial explanations. These explanations are presented in detail in Chapter 3. Following this, a model will be presented to illustrate the relevant causal mechanisms suggested by the current results.

Biological Explanations

(i) Depressed mood is caused by reduction in oestrogen levels and possible changes in gonadotrophic hormones

This is the most commonly assumed biological explanation. Study III was carried out to assess the association between oestradiol, FSH & LH levels and symptom reports. There were no significant associations between measures of mood and gonadotrophic hormones or levels of oestradiol. This study suffers from

methodological problems, particularly the use of single hormone assessments, thus the results should be considered only as weak evidence against the hormonal explanation. Despite these problems the findings are consistent with a growing body of research suggesting a lack of association between mood and hormone levels (see Asso, 1983 and Parlee, 1983).

It is possible that the rate of change in oestrogen and gonadotrophic hormones might influence symptom experience. This is one explanation of the increase in irritability, which was evident in only perimenopausal women. The perimenopause is thought to be the time when most changes are experienced in hormone levels (Studd et al, 1977). Unfortunately the current studies did not assess this explanation.

(ii) Depressed mood is caused by autonomic nervous system changes

Autonomic nervous system (ANS) changes associated with vasomotor symptoms have been suggested as causes of anxiety and minor somatic symptoms in menopausal women. If this were the case increased reports of palpitations and transient increases in arousal symptoms might be expected (Sturdee et al, 1978). In the current studies the prevalence of palpitations did not increase in peri or postmenopausal women. Thus it could be argued that ANS changes are unlikely to have a major impact upon menopausal women. It is possible however that irritability, being the only symptom to increase only in perimenopausal women, could be mediated by increased symptomatic nervous system arousal. Perimenopausal women also reported being less able to cope with symptoms. If this explanation were relevant, the association between ANS changes and symptoms would be expected throughout the time that hot flushes were experienced, that is by both

peri and postmenopausal women, and they were not. Thus although this explanation is plausible the relevant findings from the current studies do not, on the whole, offer support to this theory. Further research is needed to understand the specific relationships between vasomotor symptoms, ANS changes and mood changes.

(iii) Depressed mood is a reaction to experience of vasomotor symptoms during the menopause.

As outlined above there were no significant associations between depressed mood and concurrent vasomotor symptoms in the prospective study. It is not clear why the findings of the cross-sectional survey were not replicated in the prospective study. There was not a tendency in the expected direction. It is possible that postmenopausal women, of whom there were a greater proportion in Study I, may react more to vasomotor symptoms because they have had more time to become chronic and troublesome. In other words vasomotor symptoms of six months duration may be less depressing than those experienced for several years. Severity of vasomotor symptoms was not investigated in detail in this study, however the vasomotor symptom factor score summated ratings of the presence of hot flushes and night sweats.

In the prospective study there was a tendency for premenopausal women who were depressed to be more prone to vasomotor symptoms when they became menopausal. This finding provides some evidence that, for peri and recently postmenopausal women, the direction of causation between depressed mood and vasomotor symptoms may be in the opposite direction of that suggested by this explanation.

Psychosocial Explanations

(i) Social stereotypes about the menopause have a negative impact upon women's perception and experience of the menopause.

This explanation was supported by the results of the prospective study. Beliefs about the menopausal experience of women in general, before the menopause, were associated with depressed mood on becoming peri and postmenopausal. Negative stereotypic beliefs accounted for 6% of the variation in depressed mood. These beliefs were independent of current mood state and were more negative than women's personal expectations of the menopause. Given the predictive relationships between stereotype and mood experienced during the menopause, the results suggest that negative stereotype may well influence women's perception and interpretation of the menopause. Mechanisms such as the labelling of bodily experiences (Pennebaker, 1982) and the attribution of symptoms (Antaki, 1984) may explain how this process might occur and will be discussed further in Section (iii).

To date this is the first study to provide empirical evidence to support this explanation.

(ii) Psychosocial stresses such as life events or role transitions account for depressed mood experienced during the menopause.

These explanations rely on the assumption that such psychosocial changes occur coincidentally with changes in menopausal status. In the cross-sectional study peri and postmenopausal women were less likely to have a child at home and more likely to be grandparents. These variables were not associated with depressed mood. In fact the reverse was the case for reports of somatic symptoms, having a child still at home was associated with more

symptoms. These results are consistent with a growing consensus of findings that children leaving home is not necessarily a crisis and is certainly not necessarily temporally associated with the menopause (Krystal & Chiriboga, 1979).

Stressful life events have been studied as important factors in the development of depressed mood generally (Brown & Harris, 1978) and in relation to symptoms experienced during the menopause (Greene & Cooke, 1980; Cooke & Greene, 1981; Ballinger, 1985). In the current study the stress measure used was simplistic in comparison with those used in other studies. A detailed study of life events was not the main focus of this study. In the current study the proportion of women rating themselves as having been under recent stress did not significantly change during stages of the menopause. However stress ratings were associated with reports of psychological symptoms. Greene and Cooke (1980) using a life events scale (Paykel et al, 1976) came to the same conclusions. They found that life events accounted for a greater proportion of the variation in psychological and somatic symptoms than menopausal status. When types of life events were examined in detail they found that exits such as bereavements increased in frequency in the early to mid climacteric (aged late 30's to early 40's). These specific stresses were associated with reports of somatic symptoms. Cooke and Greene (1981) proposed a vulnerability model suggesting that early climacteric women are more vulnerable to psychological reactions to general stresses. Since these authors did not find a significant increase in psychological symptoms this explanation does not seem to be tenable. This theory has been discussed in Chapter 3. In the current study relatively more bereavements were reported by peri and postmenopausal women, however

there were too few to analyse statistically. It remains possible that bereavements could partially account for the increase in depressed mood in peri and postmenopausal women.

The idea of physical vulnerability interacting with ability to cope with life stresses has been suggested by Greene & Cooke (1981) and Ballinger (1985). However this hypothesis has not been tested adequately. Ballinger (1985) found that life events and clinical stress measures were more consistently correlated in a non-patient group than a group of women attending a menopause clinic and proposed that physical vulnerability, such as hot flushes or hormonal changes caused by the menopause, might explain the lack of association in the patient group. In the current study perimenopausal women reported having greater difficulty in coping with the symptoms in the cross-sectional study but this was not confirmed in the prospective study.

In the prospective study the reports of being under stress before the menopause were associated with depression during the menopause. However premenopausal depressed mood was the stronger predictor of menopausal depressed mood and the effects of stress appeared to be subsumed within the variable premenopausal depression.

General psychosocial factors were also considered as predictors of depressed mood. In the cross-sectional survey socioeconomic status, marital status and parity were all associated with depressed mood, however they did not necessarily explain the increased prevalence of depressed mood in peri and postmenopausal women. Although these results were not confirmed in the prospective study there were trends in the expected direction. In this study being unemployed before the menopause was associated with depression

at peri/postmenopause. When the effects of depressed mood and stereotype were held constant in a stepwise regression analysis the effects of employment and socioeconomic status (being working class) did predict an additional 5% of the variation in symptoms.

Finally it has been hypothesized that life stress may actively lead to a reduction in oestrogen levels, hence vasomotor symptoms and possible emotional reactions (Ballinger et al, 1979). In the prospective study there was a non-significant tendency for premenopausal depression to be associated with vasomotor symptoms reported at peri and postmenopause. This finding offers limited support for this hypothesis.

In summary there is no evidence that the menopause is a specifically stressful time, ie. that life events and role changes coincidentally occur at this time. There is limited evidence that bereavements may account for a proportion of the variation in depressed mood in menopausal women.

(iii) <u>Individual factors such as previous depression, attitudes and beliefs and experience of menstrual problems may be associated with depressed mood during the menopause</u>.

This explanation was confirmed by the results of the prospective study with respect to premenopausal depression. Premenopausal depression was the strongest predictor of depression reported at peri/postmenopause. However this finding does not necessarily explain the <u>increase</u> in depression found in menopausal women. There was no evidence that women who may be regarded as being more prone to perceiving the menopause as a loss, such as single women and those who had not had children, experienced greater depression on reaching the menopause. In fact the converse was the case; married

women and those who had had children were more prone to depression than single women.

Stereotypes, attitudes and beliefs were investigated. In the cross-sectional survey negative beliefs about the menopause and negative expectations of one's own menopause were associated with depressed mood. (The 10 specific beliefs were not included in the prospective study.) As discussed earlier in this section, negative stereotypic beliefs did predict depressed mood on reaching the menopause.

This finding can explain the <u>increase</u> in depression at peri/postmenopause since the stereotype may provide a filter through which physiological sensations arising from hormonal changes and general emotional and physical sensations, will be experienced. Kaufert (1982b) suggests that experience of the menopause is influenced by the interaction between a woman's self-esteem and her menopausal stereotype. Women with low self esteem may be more vulnerable to negative social stereotypes. The current results provide evidence to support the view that the extent to which women individually hold a negative social stereotype determines psychological experience during the menopause.

Information about experience of past menstrual problems, specifically having suffered from premenstrual tension was available. In the cross-sectional survey reports of past PMT were associated with depressed mood and there was a non-significant tendency for this to be the case in the prospective study. Past PMT was one of the predictors of vasomotor symptoms in this study, as discussed earlier (see Chapter 10(c) and Hypothesis 5(k). It is possible that past experience and expectations of menstrual events might also influence actual reactions

to the menopause, such as depressed mood.

Finally one variable - taking regular exercise - was consistently associated with depression (as well as anxiety and somatic symptoms and sleep problems) in a negative direction, in both the cross-sectional and prospective studies. Women who take regular exercise may be generally healthier but may also have a more positive attitude and have developed active coping behaviours in preparation for the menopause. Exercise is generally advocated as a preventive measure in North America (Reitz (1977) proposed "move to save your life") and in Britain (Coope, 1984), however there is little empirical evidence of its efficacy. Exercise has been found to be associated with perception of one's health in menopausal women (Lutter, 1984). In a recent study of the effects of exercise upon sexual behaviour in postmenopausal women, Bachmann (1984) found that while exercise had no effects upon sexual behaviour those who exercised regularly improved in terms of anxiety and ratings of general well being.

(iii) A PSYCHOLOGICAL MODEL OF THE MENOPAUSE

As outlined above explanations of individual differences in experience of the menopause have relied largely upon either biological or sociological models. Neither adequately explain the range of emotional reactions, including the increase in depression, reported by a small proportion of women in this study. There is a clear need to incorporate cognitive factors into such models in order to clarify understanding of the links between predictive factors and experience of the menopause. Beliefs, knowledge and stereotypes about the menopause, and explanations and causal attributions of current symptoms experienced, may well have an appreciable impact upon

interpretation and reactions to the menopause as an event, to vasomotor symptoms and to concurrent mood state. The importance of labelling of bodily states (Pennebaker, 1982), ascribing meaning to symptoms (Taylor, 1983) and the personal representations of illness (Leventhal et al, 1980) have recently been stressed in terms of their influence upon coping and response to illness.

It is quite possible that women, their families, friends and doctors may make inaccurate attributions of symptoms at this time (Osborne, 1984; Endacott & Whitehead, 1983). This cognitive task is inevitably difficult since the information regarding her menopausal status is difficult to obtain and may only be clear in retrospect and the symptoms to be explained may be rather non-specific. To attribute symptoms to the menopause, a biological event, may appear to offer a simple solution to a series of complex problems and be less personally threatening than available alternatives. Once such an association between the menopause and subjective status has been made this can be maintained by cognitive processes such as selective distortion of evidence, and reinforced by environmental and social factors, such as peer group and hospital contacts.

Cognitive labelling theories and attribution theories have been examined to a greater extent in menstrual research. Ruble (1977) in an elegant study found that women's descriptions of bodily states, such as menstrual pain, were influenced by beliefs about their current menstrual phase. Using an attribution theory framework Koeske & Koeske (1975) found that negatively evaluated actions performed by women tend to be attributed to the menstrual cycle, even where situations or personal factors were adequate to account for the actions. Cognitive and sociological models of the menstrual problems

are provided by Ruble and Brooks-Gunn (1979) and Sherif (1980).

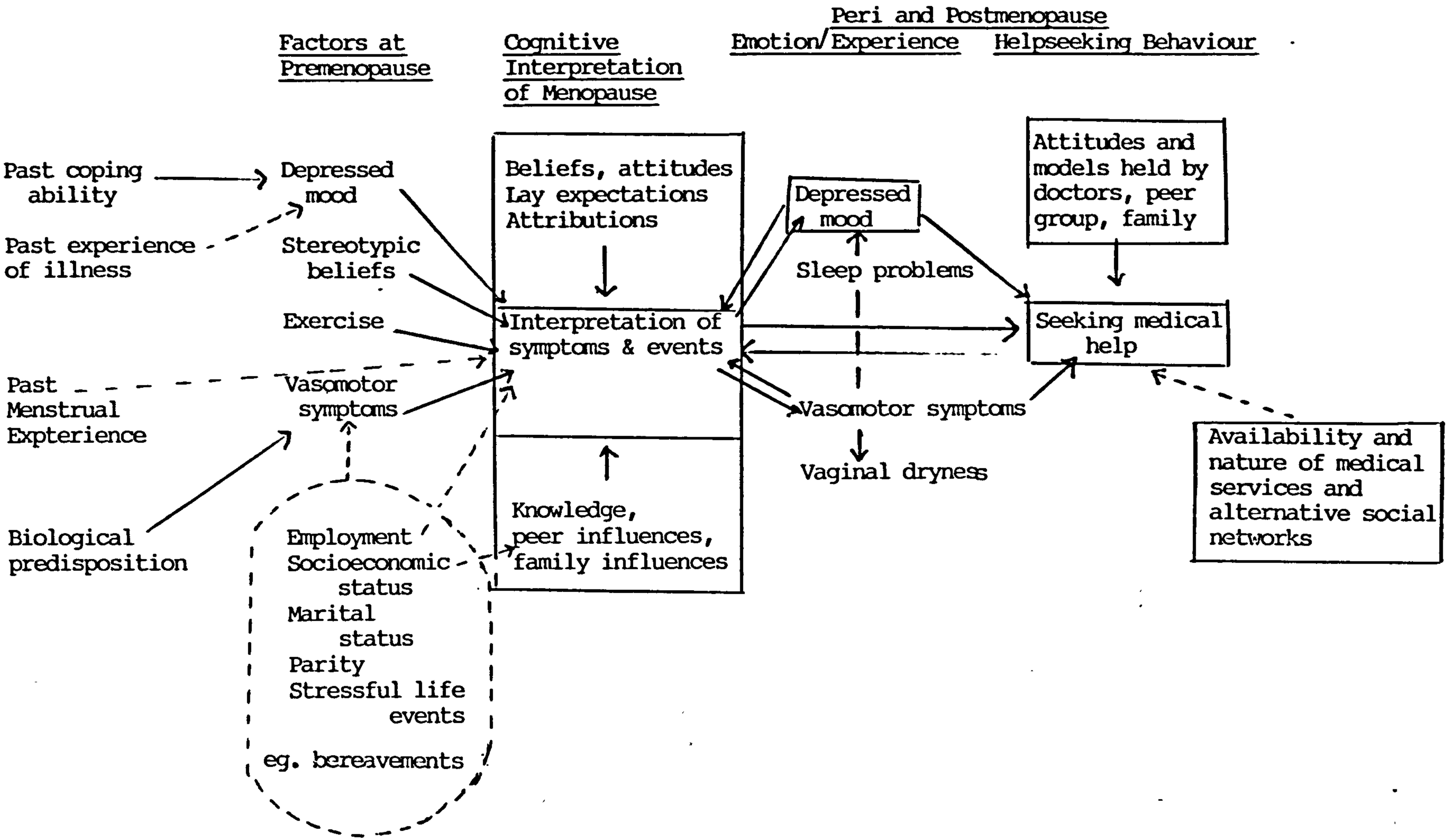
The model outlined in Figure 6 presents the possible influences upon experience of the menopause, particularly focusing on explanations of depressed mood, and medical helpseeking behaviour, that is emotional and behavioural reactions to the menopause.

The main findings of the current studies are represented in that depressed mood and negative stereotyped beliefs were the strongest predictors of depressed mood experienced during the menopause. Social factors and chance events such as bereavements, shown by dashed lines may well be aetiological factors and/or exacerbators of mood state. These factors were not necessarily associated with experience of the menopause but may influence a woman's perception and interpretation of it. For example, her levels of knowledge and the nature of her peer group may be influenced by her socioeconomic and employment status. In the current study negative stereotypes were more likely to be held by middle class women.

These factors, premenopausal depression and negative stereotype, could alone provide a psychological explanation of the increase in depressed mood found in the current research. Experiencing changes in menstrual pattern and possibly vasomotor symptoms could trigger a cognitive schema about the menopause, particularly about expected emotional and physical symptoms, with which current and future experiences will be interpreted. As a result a greater range of bodily sensations might be labelled as symptoms, and these may be more readily attributed to the menopause. A woman's emotional reaction to these changes may depend upon other beliefs about the menopause, such as whether it is controllable, whether symptoms reflect long term changes or are a temporary stage, and

Figure 6

A Psychological Model of Experience of the Menopause and Helpseeking Behaviour



whether it represents an underlying deficiency process. Women who were depressed before the menopause did not necessarily hold a negative stereotype, but may be prone to negative evaluation of events and feel helpless in the face of future events (Abramson et al, 1978). If they do view the menopause as a negative event with negative impact then their distress might be exacerbated during the menopause.

Hormonal explanations, such as oestrogen deficiency, have not received support, however again it is possible that some women may be particularly sensitive to such changes and may experience emotional or physical sensations following sudden hormone fluctuations. Similarly severe vasomotor symptoms may cause distress, however the results of the prospective study did not support this explanation. How such changes are interpreted is likely to depend upon the factors outlined in the model.

A relatively unexplained area is the interpretation of autonomic nervous system changes which may occur with vasomotor symptoms. The results of this research did not suggest that anxiety increased or that ANS mechanisms were relevant to explanations of depressed mood. However it is plausible that should non-specific hormonally associated changes in arousal occur in the context of negative psychosocial factors, then this subjective state might be construed as a negative emotion such as irritability. The link between psychosocial factors and emotional reactions may be forgotten if a biological explanation of the menopause is predominant. Similar possible mechanisms have been applied to menstrual cycle research (Koeske & Koeske, 1975). There is also some evidence that women may be more susceptible to aversive conditioning in the premenstrual phase (Asso & Beech, 1975; Vila & Beech, 1977, 1978) - a phase in which

increases in ANS arousal have been found (Asso & Braier, 1982). Thus the link between negative symptoms or experiences and the menopause may be strengthened at times when menopausal women experience heightened arousal.

Returning to the model, it might be expected that women who experienced the menopause earlier than they anticipated, might have greater difficulty in developing explanations about their physical state and may be less well prepared in terms of information. They may interpret symptoms such as vasomotor symptoms and vaginal dryness, as representing signs of illness, and symptoms such as palpitations as indicating changes in emotional reactions. For example reduced vaginal lubrication may be regarded as a sign of loss of emotional feelings towards a sexual partner. Similarly the issue of ascribing accurate meaning to bodily changes may explain why some women in the current studies, on becoming menopausal, perhaps as a result of uncertainties outlined above, reported feeling irritable and having difficulty coping with symptoms which were experienced. These issues may also be relevant to women who have had a hysterectomy and therefore will not be able to rely on changing menstrual patterns as signs of the menopause. In addition the effects of hysterectomy and those of oophorectomy are frequently confused.

Although it is accepted that there are few known predictors of vasomotor symptoms, and that to a large extent these symptoms may be determined by biological factors, the findings of this study do suggest that the occurrence of vasomotor symptoms may be influenced by reported experience of past premenstrual tension and by vasomotor symptoms reported before the menopause. The mechanisms underlying these associations are not certain but the evidence would seem to

suggest that some women may have less stable thermoregulatory symptoms, or be more sensitive to such changes, and hence be more likely to experience vasomotor symptoms during the menopause (Voda, 1982). An alternative explanation is that our definitions of menopausal status misclassify those women who may be perimenopausal, although regularly menstruating (Studd et al, 1977). As discussed earlier, having experienced premenstrual problems could lead to an expectation that menstrual events are negative experiences, however some sort of hormonal vulnerability influencing premenstrual experience and development of vasomotor symptoms is also a possibility.

Premenopausal depressed mood may also be a factor in the aetiology of vasomotor symptom reports. A non-significant tendency was found in this study, which was in line with the findings of Hallstrom (1973) and Gath et al (1987). Explanatory mechanisms might involve reductions in oestrogen levels. However it is also possible that negative beliefs which are commonly associated with depressed mood (Beck et al, 1979) and/or bodily preoccupation might lead to increased awareness and reporting of vasomotor symptoms.

The current study focussed on one aspect of <u>behavioural reactions</u> to the menopause, that is seeking medical help specifically for the menopause. The results suggest that decisions to seek medical help may occur when emotional distress together with vasomotor symptoms are experienced in the context of certain beliefs. Specific beliefs included beliefs that there was a current disease process, that the menopause does not depend upon one's attitude of mind and that psychological and physical problems occur during the menopause. The latter beliefs suggest that general or ongoing emotional or

somatic symptoms may be attributed to the menopause. The reported experience of past menstrual problems was associated with the belief that the menopause does not depend upon one's attitude of mind. In other words menstrual events may be perceived as personally uncontrollable. Additional factors such as attitudes and models of the menopause held by friends, peers, family and doctors as well as availability of medical services, and availability of alternative support systems, will also influence whether women finally reach specialist menopause clinics. For example some women may feel that they have symptoms which warrant medical help but do not have confidence in their doctors in the realm of menstrual or female problems (Scambler & Scambler, 1985).

This discussion has tended to focus upon negative experiences and reactions. However it is equally applicable to positive experiences of the menopause and may be useful in formulating measures to improve the experience. The majority of women who were not depressed before the menopause and did not have particularly negative beliefs may use the menopause positively as a life marker or opportunity to re-evaluate life-style and future plans. The results suggest that stereotypic beliefs are more negative than were warranted from the experiences reported by menopausal women. Coping ability prior to the menopause was associated with positive expectations of the menopause. It is interesting that women's personal expectations of the menopause were rated as more positive than their comparison group 'most women'. There is a general body of literature suggesting that prior to a threatening situation, individuals in general will usually make self-enhancing comparisons in an apparent effort to bolster self-esteem (Wills, 1981). It is likely that the relative

positions women place themselves and their comparison group along the various dimensions of beliefs about the menopause will influence subsequent adaptation.

Taking regular exercise before the menopause also appeared to be a preventative factor. Taking active steps in preparation for the menopause may enhance a sense of mastery and feeling of self control and hence facilitate coping (Taylor, 1983). This positive position has been contrasted with a more helpless attitude in which challenge may be avoided (Dweck & Leggett, 1988). In general the studies presented here suggest that positive beliefs about the menopause are justified, particularly in relation to experience of physical symptoms. There is evidence from the study of depressive cognitions generally, that holding optimistic beliefs and even illusions about personal control is associated with effective coping (Lewinsohn et al, 1980).

In conclusion, when attempting to explain the cause of emotional symptoms during the menopause a single, hormonal explanation is often relied upon. The available evidence emphasises the importance of psychological explanations of emotional reactions and the considerable number of different possible causal factors during this period. The model is primarily focussed upon cognitive factors and provides a framework for testing hypotheses concerning the mechanisms and links between psychosocial factors, biological changes and experience and reactions to the menopause. The model is not intended to describe a static process since women may utilize different explanations of their bodily states at different stages of the menopause. Similarly helpseeking behaviour is likely to involve a series of contacts resulting in varying levels of satisfaction.

The practical implications of this approach to the menopause include:-

(i) the need to provide preparation for the menopause in terms of health education, medical training and further resources to promote a balanced, and more optimistic view of the menopause.

(ii) the need to change attitudes and beliefs held by influencial groups such as gynaecologists by carrying out joint research and publishing such research in journals commonly read by medical practitioners.

(iii) in clinical work with menopausal women behavioural counselling has been used (Greene & Hart, 1987) and a problem solving approach focussed upon women's attributions of symptoms has been suggested (Hunter, 1988). Development of cognitive therapy approaches for women who seek medical help is advocated.

(iv) PROBLEMS IN DESIGN OF THE PRESENT STUDIES

Methodological problems are discussed in relation to the four studies. Since the Woman's Health Questionnaire (WHQ) was used

throughout, measurement issues are dealt with under Study I.

(a) Study I: Cross-sectional Survey

The main issues here can be divided into sampling and measurement problems. The sample was essentially a volunteer sample. Although women were not primarily volunteering for inclusion into this research they were volunteering for ovarian screening. Steps were taken to examine the psychosocial characteristics of the sample and the extent to which they might be overly health conscious. However this sample may have differed from the general population of women living in South East England in ways not assessed in this study, such as being more inclined to seek medical help. Resources did not permit a random sampling of women in several areas of London and South East England. Ideally women could have been recruited using a random sample of the general population using a range of general practitioners or from the electoral register. These methods were used in North American studies (McKinlay & McKinlay, 1986; Kaufert, 1984), where greater resources were available.

Secondly, in retrospect, the subgroups of women given the scale of 10 specific beliefs and those given the stereotype questionnaires were not adequately sampled since the former group were not representative of the larger population in terms of socioeconomic status. Different forms of the questionnaire were sent out in batches thus possibly recruiting women who had heard about the screening from different sources. This problem could have been avoided if the two forms of the questionnaire had been sent out in much smaller batches (eg. 5-10) in turn throughout the recruitment period.

Measurement problems included classification of women in terms

of socioeconomic, employment and marital status, and the validity of certain measures. Firstly, assessment of socioeconomic status is particularly problematic when considering a female sample. Traditionally socioeconomic status is defined in terms of the nature of occupation of the male. In the current study the socioeconomic classification of the Office of Population Censuses and Surveys (OPCS, 1970) was used. This classification has two main disadvantages: it was not derived empirically and it tends to classify female occupations into higher groups than are justifiable (Bebbington et al, 1981). Additional problems arise in the use of an older sample, some of whom are retired. If the male occupation is used, which was the case in this study, it is generally assumed that the male's employment has the major impact upon the lifestyle and finance of the unit. Situations in which the woman is the higher wage earner would not be represented. In addition, using the male occupation as the major criterion is not relevant to the classification of unmarried, divorced or widowed women. The alternative option, to use the woman's occupation if employed, may more closely reflect a woman's socioeconomic status. However using this method would render a considerable proportion of women, such as housewives, unclassified and this method fails to distinguish sufficiently finely between women's occupations (Graham, 1984).

As a compromise in this study the male occupation was used for married women and their own (if available) for unmarried women. This method has been adopted by Brown and Harris (1978). For retired people the previous occupation was coded if available since it may be assumed that recently retired people would generally maintain their standard of living for at least a short time interval. In the recent

North American (McKinlay & McKinlay, 1986; Kaufert, 1984) and Norwegian (Holte, 1987) prospective studies, both income and number of years of education were used. Holte (1987) assessed both family partners' level of income, while in the North American studies per capita household income was used. Jennings et al (1984), reporting results of the Massachusetts survey regarding the effects of employment, noted that both educational level and family income were highly correlated. They recommended using educational level as a measure of socioeconomic status. In future studies it would be useful to include measures of income and educational level and compare these with socioeconomic status as assessed by male (and or female) occupation.

The classification of employment into full-time or part-time in this study did not allow discrimination between women who choose to be housewives and those who are unemployed and looking for work. The relationships between employment status and symptom reports may well have been different for these subgroups of women. Using this method of classification, Jennings et al (1984) found that employed women were healthier than full-time housewives but that the least healthy group were unemployed women.

The criteria used to describe marital status included single, married, divorced and separated women, but in retrospect more detailed categories could have provided richer information. For example, women who are cohabiting or within a stable relationship may differ from single women in variables such as social support. Similarly, using the current classification, information would be lost regarding women who had been divorced or widowed and recently remarried. In future studies response choices could include these additional categories.

Moving on to consider measures of symptoms, stress and general health, the symptom scale developed for use in this population has advantages over symptom measures used in other studies. The questionnaire provided a detailed breakdown of symptom clusters based on empirical investigation, it was consistent over short time intervals and had validity estimates for the depression scale in relation to standardized instruments. Had more resources been available, validity estimates would have been more meaningful if psychiatric interviews, such as the Present State Examination (PSE) (Wing et al, 1974), could have been included. However total PSE scores have been found to be highly correlated with those derived from the General Health Questionnaire which was used in the current study (Wing et al, 1977; Newson-Smith & Hirsch, 1979). Similarly, concurrent validity could have been sought for reports of gynaecological symptoms using a specific gynaecological interview. If the study were repeated further details of the frequency, severity and duration of vasomotor symptoms would have been included. Items included to assess memory and concentration did not appear to be valid and may be better assessed in empirical studies using objective psychometric tasks.

The assessment of experience of recent stress was inevitably simplistic. This question could not elicit independently occurring life events since ratings of independence or controllability were not made. For example women who were distressed may have become more prone to marital conflicts, financial problems and stress at work. Brown (1981) argues that a consensus of several raters is needed to judge the extent to which events are stressful and likely to be independent of mood state. In a detailed study of life events in

middle aged women, Greene & Cooke (1980) used a semi-structured interview to elicit events experienced in the past year. Only those rated as probably or certainly independent from symptoms were considered. A list of 63 events were taken from the life event literature and scoring methods developed by Paykel et al (1976) were used. Ballinger (1985), on the other hand used a modification of the Tennant-Andrews scale (Tennant & Andrews, 1976). There were no resources available to carry out large numbers of life events interviews and this was not a major focus of the current research. However it would have been useful to have examined a smaller subsample and investigated the relationship between the simple scale used here, which elicited personal evaluation of stress, and more formal assessment methods. The method used in this study did elicit fairly detailed descriptions of the types of stress experienced: these responses could have been analyzed in a more sophisticated manner, using independent raters to divide responses according to their independence from current mood and symptom state.

Regarding different health measures, certain questions, if rephrased, would probably have yielded more objective assessments. For example, rather than ask women whether they had been ill or were currently ill, reference could have been made to visits to hospital or doctors as well as stressing major illness in both cases (past and present illness) with examples of types of illnesses considered relevant. The current question could have grouped together someone with cancer and someone with gastric influenza, conditions with clearly different impact upon the individual.

In retrospect, questions were ommitted covering areas which might have provided important information. These include further

details on menstrual patterns and problems occuring during the menstrual cycle, and questions aimed to elicit details of the woman's perception of her own mother's menopause, as well as other women in her current peer group. Similarly, level of social support was not investigated in this study.

Finally, in order that women should be unaware that the menopause was the focus of this study, the questions were presented as a general health questionnaire. However specific questions, including stereotypes and beliefs and expectations and gynaecological questions, were presented on the final page of the WHQ. It is possible that women were not blind to the purpose of the study, since they might read the final page first. While attempting to prevent symptom responses being confounded by questions pertaining to the menopause, the format of the current questionnaire can be criticized since responses to the belief items may be biased by previous completion of the symptom questionnaire. This effect would be expected to lead to more symptom orientated and possibly negative answers to questions about the menopause. Within the symptom questionnaire, however, the questions were presented in both positive and negative directions. Again, given the lack of resources, it was not feasible to send out separate questionnaires. There is adequate evidence from menstrual cycle literature (Parlee, 1974; May, 1975) that knowledge of the purpose of the study elicits stereotyped responses in personal ratings of subjective states. In view of this it was considered better to attempt to avoid this bias and risk bias affecting belief items. Given that the majority of comparisons were between subgroups within this sample, it would be hoped that any bias might be comparable between groups.

(b) Study II: Prospective Study

Problems met in this study were largely in design. However the major problem is probably the difficulty in recruiting a large sample of premenopausal women who were to become peri or postmenopausal within a reasonable time period. Although this study was set up to test hypotheses suggested by the cross-sectional survey, the prospective sample differed by being largely perimenopausal or recently postmenopausal. Use of a longer time interval, such as five years, might have rendered the samples from the two studies more comparable. Despite this problem the results of Study II, in general, confirmed the findings of Study I.

A major problem met with this type of design was that menopausal status and age were inextricably linked. The effects of age were examined in this study within the five year age range at both pre and peri/postmenopause. However in future studies, if larger samples were available, comparison of groups of women who were peri/postmenopausal or still premenopausal at follow-up would enable investigation of the separate effects of age and menopausal status.

Although a repeated measures design was used here, assessments were only made on two occasions. Paired t-tests were used which provide the same results as repeated measures analysis of variance when only two contrasts are made. In similar larger scale studies being carried out in Norway (Holte, 1987) and North America (Kaufert, 1984; McKinlay & McKinlay, 1986), assessments are being made by phone call in North America every six months for three or five year periods, and in Norway by detailed interview and gynaecological examination every year for a five year period. These methods enable the process

of the menopause to be examined in greater detail.

In this study it could be argued that pre-post difference scores would have yielded more meaningful representation of changes in symptom experience. Equally scores of peri/post menopause could have been the focus using premenopause scores as covariates. Since the main interest in this study was to replicate the cross-sectional findings and try to predict postmenopause scores using premenopausal variables, both pre and peri/postmenopause scores were presented for comparison. The effects of initial scores were not controlled for, however these levels were used as independent variables in the stepwise regression analysis as possible predictors of symptoms reported at follow-up.

Finally it was estimated that the effects of having completed the first questionnaire would have minimal impact on responses three years later. It is possible however that having completed questions about attitudes and beliefs about the menopause, on the final page of the WHQ on the first occasion, might influence subsequent responses to the whole questionnaire. A separate study would be needed to compare symptom reports alone, then preceding and following the attitude/belief section with varying time intervals between these and a second assessment.

(c) <u>Study III</u>: <u>Relationships between hormone assessments and symptom reports</u>

This study was designed to assess the relationship between gonadotrophic hormones (FSH, LH), oestradiol and mood and current symptom reports. The major problem in the design of this study lies in the unreliability of single hormone assessments, particularly in

women who experience menstrual cycle changes (Cooke, 1976) as well as diurnal variations (Adamopoulos et al, 1971). In pre and perimenopausal women hormonal assessments would be prone to considerable error since marked hormonal fluctuations occur. For example the preovulatory surge in LH is higher than that reached on average during the postmenopausal period. In view of this problem postmenopausal levels of these hormones may be considered to be more reliable, however circadian changes remain a problem.

Absolute levels of these hormones were available, as a result the effects of changes in hormone levels which are viewed as important in the aetiology of vasomotor symptoms, could not be assessed. Ideally concurrent assessments would be made over reasonable time periods so that changes in hormones and symptoms could be assessed. This method is being carried out in a large study in Norway by a team of psychologists and gynaecologists (Holte, 1987). The resources available for the present study did not permit such an approach, since the design was dictated largely by the availability of hormone assays taken in routine clinic work.

Hormone levels were compared with symptom assessments made up to three weeks before the gynaecological interview. It was not possible to predict who would require hormone assessments and questionnaires were being sent out to new patients prior to their initial interview routinely for the purposes of Study IV (to avoid bias information from the interview influencing responses to the questions). Women were asked to complete the WHQ just before their visit. It might have been possible to ask only those women who had hormone assessments to complete questionnaires immediately beforehand but at the time of the research the clinic staff would not have had

time to give out questionnaires or call the researcher who would not have been available at all times.

The WHQ was however found to be reasonably reliable within a two week time period and the results of this study were consistent with the results of studies using concurrent assessments on premenopausal women (Abplanalp et al, 1979) and postmenopausal women (Coope, 1981).

(d) Study IV: Medical helpseeking behaviour in menopausal women.

Women who were referred to a menopause clinic were compared with the sample of women who took part in Study I, in order to examine the characteristics of women who seek medical help. It was assumed that the non-clinic comparison sample were not attending a menopause clinic. Those who were taking hormone replacement therapy were excluded. Given that this is the major form of treatment offered in these clinics, it seems reasonable to assume that only a very small proportion of women might have sought specialist medical help. Only a small proportion of women are estimated to attend specialist menopause clinics (3-4%, Whitehead, 1982), so this risk would appear to be small.

Menopause clinic attenders completed the questionnaire prior to their initial appointment in order to avoid contamination of responses from the consultation. These women were mostly referred to the clinic by general practitioners or hospital doctors and will have already discussed their menopause with a doctor. It is possible that such discussions may have increased the likelihood that these women would hold a negative attitude to the menopause, attribute symptoms to the menopause and hold a medical model of the menopause in the

extreme, as a deficiency disease. The menopause clinic attenders did differ from non attenders in beliefs about current disease. However the factors influencing the development of such beliefs are not known as yet.

It is possible that, because the larger non-clinic sample had attended a hospital for routine ovarian screening, they may have shared characteristics with medical help-seekers to a greater extent than the general population. However the two samples did differ appreciably and in ways expected from general research on why people go to the doctor (Mechanic, 1983).

A particular problem in the design of Study I, that of sampling of those women who completed the attitude questionnaire, meant that comparison of the two samples on the scale of beliefs was confounded. The two samples differed in terms of socioeconomic status. In order to compensate for this problem, the analysis were repeated controlling for the effects of socioeconomic status.

Finally comparisons were made between biological and psychological variables as discriminators of helpseeking behaviour. This comparison may have been rather unfair since the depression factor score, containing more individual items, would have reflected severity of this symptom group to a greater extent than the vasomotor factor score which contained only two items (hot flushes and night sweats). It would have been helpful and perhaps fairer to have had further details of severity and frequency of hot flushes when making this comparison.

In summary, the studies described suffered largely from limited resources. Ideally a longitudinal study with several assessments covering a five year time interval, including some

interviews and repeated hormone assessments, would have been attempted. Certain improvements in measures and in sampling would be recommended in retrospect. The advantages of the present study over recent epidemiological surveys were in the design of Study I which took account of methodological problems outlined in Chapter 2 (i). Although smaller in scale, this series of studies provides British data which may be compared with the results from the larger longitudinal studies being carried out in North America (McKinlay & McKinlay, 1980; Kaufert, 1984) and Norway (Holte, 1987). Finally it is important to stress that the findings of this study are only really generalizable to women living in South East England. Cultural factors and assumptions of normality have been recently discussed in relation to menopause research (Kaufert et al, 1986). Comparison of findings from the current prospective studies should enable comparisons of experience of the menopause, at least within Western societies.

(v) FUTURE RESEARCH

Given the breadth of this area and the lack of psychological research, only a limited number of possible avenues for future studies can be suggested. It seems important in future research to balance the more recent large scale epidemiological surveys with smaller, focussed studies, aimed at specific questions. As outlined in the previous section, more sophisticated longitudinal studies are being carried out including hormone measures in some cases (eg. Holte, 1987). These studies should clarify the process of change through the menopause transition and throw further light upon causal mechanisms such as hormone levels and changes and life events. In order to facilitate communication and theoretical understanding it would be

advantageous for these studies to be carried out by teams of different professionals including medical and psychological researchers.

In order to complement these studies, smaller, in-depth interview studies are needed to form firmer hypotheses about the factors influencing women's personal experience of the menopause. For example, what are women's particular fears at different ages?, what do women remember about their own mother's menopause?, how do women describe their peer groups' attitudes to the menopause? Given the results of the prospective study it would be very interesting, and possibly have preventative implications, to know more about the development of negative stereotypic beliefs about the menopause. Comparable retrospective studies of the effects of initial menarche experience and attitudes to menstruation upon menstrual experience have provided interesting results. Koff et al (1982) using a retrospective questionnaire, concluded that knowledge and preparation at menarche were associated with experience of menarche. However Woods et al (1982) found that current menstrual attitudes but not experience of menarche were associated with reported menstrual symptoms. Women of different age bands would be asked to complete the cognitive questionnaires used in the current study and then be interviewed in greater depth about the reasons why certain beliefs were held. Such exploratory work could provide hypotheses to follow up with empirical studies but at present it seems appropriate to return to women's beliefs and subjective reports.

Several other areas in which empirical studies could be carried out will be outlined.

(i) Firstly the relationship between vasomotor symptoms and mood could be studied using a series of single cases over a reasonable time

period so that the impact of minor mood fluctuations, as well as life stresses, could be assessed. Objective techniques have been used to monitor hot flushes based on skin conductance changes and finger temperature (Tataryn et al, 1981). The use of psychological treatments, involving relaxation and counselling, to alleviate hot flushes has been described in preliminary reports (Stephenson & Delprato, 1983; Germaine & Freedman, 1985). Reductions in symptom frequency were found and more objective methods developed to assess vasomotor symptoms, such as heat stress (Germaine & Freedman, 1985). Indices such as distress, cognitive appraisal, tolerance and behavioural reactions to hot flushes could be examined in relation to objective measures such as hot flush latency under heat stress. Appropriate treatments such as relaxation, cognitive therapy or behavioural treatments may then be investigated depending upon the initial assessment. This type of approach has been used in the assessment and treatment of headache (Phillips, 1977) and fear (Rachman & Hodgson, 1974) and may provide a viable alternative to oestrogen therapy.

(ii) The finding of a relationship between premenopausal stereotypic beliefs and peri and postmenopausal depressed mood requires replication using samples drawn from different populations.

(iii) If stereotypic beliefs do have a predictive effect, as shown in this study, further investigation of the nature and origins of these beliefs might be fruitful. Beliefs could be assessed in different age bands of women. Following this, information could be provided about the menopause and its impact upon beliefs examined to investigate how resistant to change these beliefs are. Further studies could assess the effects of different types of information and

perhaps the use of cognitive therapy aimed at changing particular fixed ideas about the menopause.

(iv) That women might attribute symptoms which may have other more plausible explanations to the menopause, was suggested by the results of Studies I and II. Menopausal status accounted for only a small proportion of the variation in symptom reports, while approximately half the sample attended their doctor with "symptoms of the menopause". Exploratory studies could focus upon the types of causal attributions and lay explanations made by women when trying to understand depressed mood or vasomotor symptoms experienced. They could be asked what the emotional and practical implications might be for different causal explanations, because it is far from clear what the implications of different causal attributions may be. For example symptoms may be attributed to hormones, nerves, age, marriage, or combinations of these possible factors. A hormonal attribution may be associated with feelings of mastery for some women and with feelings of illness for another. Brewin and Antaki (1987) and Weiner (1988) outline recent developments and difficulties in the application of attribution research and this approach would seem most promising for explaining the relation between causal beliefs and outcome in menopausal women.

(v) Given the ranging theoretical positions available it is likely that doctors, such as general practitioners, will hold varying views about the menopause. As a result treatment might be idiosyncratic, depending upon the combination of the woman's own theories and needs and the doctor's model of the menopause. This was borne out in Lock's (1985) study of medical treatment of menopausal women in Montreal. The influence of patients' own beliefs upon the process and outcome in

dctor-patient communication has been stressed in recent studies of health behaviour (Tuckett et al, 1985). Studies of both doctors' and patients' beliefs and information, and the outcome of consultations, such as satisfaction, information and possible change in beliefs about the menopause, might provide a basis for understanding what women want from the doctor and where further medical training could usefully be employed.

(vi) Finally two subgroups of women appear to experience more symptoms - women who have become postmenopausal at an earlier age than average and those who have had a hysterectomy. Future research could usefully focus upon women's specific fears and beliefs about early menopause as well as their need for information and possible counselling. Those who have undergone hysterectomy, whether with oophorectomy or not, appear to be a group of women who may, in general, have had somatic and psychological difficulties prior to their hysterectomy (Gath et al, 1982). Psychologists could usefully examine the illness behaviour of these women and investigate alternative treatments for initially presenting problems, such as menorrhagia.

(vi) CONCLUSION

Reports of vasomotor symptoms and, to a lesser extent, depressed mood, increased in prevalence in peri and postmenopausal women. However these changes did not influence ratings of general health or health related behaviour. There were no significant changes in reports of anxiety or somatic symptoms. The results of the present studies suggest that commonly held beliefs about the menopause (that

it brings psychological and physical problems) are unduly pessimistic. Variation in depressed mood reported during the menopause was best predicted by premenopausal depression, negative stereotypic beliefs and social factors. While biological explanations cannot be ruled out on the basis of current knowledge, psychological variables appear to be adequate to explain the variation in psychological experience of the menopause. Finally psychological symptoms and specific beliefs were found to be major determinants of helpseeking behaviour at this time.

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APPENDICES

Appendix 1. Women's Health Questionnaire (WHQ). The two forms of the final page are included.

Appendix 2. Classification of Occupations and Coding Index (O.P.C.S., 1970) by occupation.

Appendix 3. Letter and Women's Health Questionnaire sent to prospective sample.

Appendix 4. The results of two way analyses of variance performed to clarify relationship between variables in explaining symptom reports. (Referred to in Study 1)

Appendix 5. The results of fitting linear logistic models, investigating the influence of socioeconimic status and clinic vs non-clinic group membership on the proportions of women holding 10 specific beliefs.

APPENDIX 1. WOMEN'S HEALTH QUESTIONNAIRE

We are studying women and their health and would be grateful if you would help us by completing the following questions. Please circle the answer which best applies to you. We want to know your views, so please fill it in on your own.

NAME: ..... AGE:.....

ADDRESS: ..... DATE OF BIRTH: .....

..... NATIONALITY: .....

..... PLACE OF BIRTH: .....

TELEPHONE NO: ..... MARITAL STATUS: Married/Single/Separated/ Widowed/Divorced

DATE: .....

OCCUPATION: ..... HUSBAND'S OCCUPATION: .....

Are you employed at the moment: YES/NO

If so, are you working full-time or part-time: FULL-TIME/PART-TIME

How many children do you have: NONE/1/2/3/more than 3

How many still live at home: NONE/1/2/3/more than 3

Do you have grandchildren: YES/NO

Do you think your general health is: POOR/FAIR/GOOD/VERY GOOD

Is your health: BETTER/SAME/WORSE than other women of your age

Are you suffering from any physical/mental illness: YES/NO

If so state briefly what the illness is: .....

Have you suffered from any major physical/mental illness in the past: YES/NO

If so please state briefly what the illness was: .....

Are you worried about your future health: YES/NO

Do you smoke cigarettes: YES/NO

Do you take regular exercise: YES/NO

Are you overweight: YES/NO

Have you been under stress recently: YES/NO

If so please state briefly what the stress is: .....

If you are married, is your marriage: POOR/FAIR/GOOD/VERY GOOD

Have you been to see your G.P. or a hospital doctor in the last month: YES/NO

If yes, how many times: 1/2/3/4/5/more than 5

Please state briefly why:

Are you taking any medication at present: YES/NO

If so please state what you are taking:

T	BP	DR	DC

Please tick YES or No in the appropriate box, in answer to the following questions:

	(1) YES	(0) NO
1. Do you often worry about the possibility that you have got a serious illness?		
2. Are you bothered by many pains and aches?		
3. Do you find that you are often aware of various things happening in your body?		
4. Do you worry a lot about your health?		
5. Do you often have the symptoms of very serious illnesses?		
6. If a disease is brought to your attention (through the radio, television, newspapers or someone you know), do you worry about getting it yourself?		
7. If you feel ill and someone tells you that you are looking better, do you become annoyed?		
8. Do you find that you are bothered by many different symptoms?		
9. Is it easy for you to forget about yourself, and think about all sorts of other things?		
10. Is it hard for you to believe the doctor when he tells you there is nothing for you to worry about?		
11. Do you get the feeling that people are not taking your illness seriously enough?		
12. Do you think that you worry about you health more than most people?		
13. Do you think there is something seriously wrong with your body?		
14. Are you afraid of illness?		

A		
D		

7 10

Please indicate how you are feeling now, or how you have been feeling in the last few days, by putting a tick in the correct box in answer to each of the following items:

	YES DEFINITELY	YES SOMETIMES	NO NOT MUCH	NO NOT AT ALL
1. I wake early and then sleep badly for the rest of the night.				
2. I get very frightened or panic feelings for apparently no reason at all.				
3. I feel miserable and sad.				
4. I feel anxious when I go out of the house on my own.				
5. I have lost interest in things.				
6. I get palpitations or a sensation of 'butterflies' in my stomach or chest.				
7. I still enjoy the things I used to.				
8. I feel life is not worth living.				
9. I feel tense or 'wound up'.				
10. I have a good appetite.				
11. I am restless and can't keep still.				
12. I am more irritable than usual.				
13. I worry about growing old.				
14. I have headaches.				
15. I feel more tired than usual.				
16. I have dizzy spells.				
17. My breasts feel tender or uncomfortable.				
18. I suffer from back-ache/or pains in my limbs.				
19. I have hot flushes.				
20. I am more clumsy than usual.				

	YES DEFINITELY	YES SOMETIMES	NOT NOT MUCH	NO NOT AT ALL
21. I feel rather lively and excitable.				
22. I have abdominal cramps or discomfort.				
23. I feel sick or nauseous.				
24. I have lost interest in sexual activity.				
25. I have feelings of well-being.				
26. I have heavy periods.				
27. I suffer from night sweats.				
28. My stomach feels bloated.				
29. I have difficulty in getting off to sleep.				
30. I often notice pins and needles in my hands and feet.				
31. I am satisfied with my current sexual relationship (please omit if not sexually active).				
32. I feel physically attractive.				
33. I have difficulty in concentrating.				
34. As a result of vaginal dryness sexual intercourse has become uncomfortable (please omit if not sexually active).				
35. I need to pass urine/water more frequently than usual.				
36. My memory is poor				

37. Is it very difficult for you to cope with any of the above symptoms YES/NO

If so, which ones:

We are interested in women's expectations and experience of the menopause.

Please tick the appropriate box.

	(1) YES	(0) NO
A. Are you still having menstrual periods?		
If no, have you had a hysterectomy?		
Are you taking Hormone Replacement therapy?		
Has premenstrual tension been a problem for you?		

B. Please list what changes (if any) you think <u>most</u> women experience at the menopause:

C. <u>If you are experiencing or have experienced your menopause please list</u> what specific changes (if any) occurred at that time:

Was the menopause BETTER/SAME/WORSE than you expected?

Did you go to you doctor with symptoms of the menopause: YES/NO

<u>If you are still having periods</u> please list what specific changes (if any) you expect to happen <u>to you</u> when you have your menopause:

D. Have you read about the menopause, e.g. in magazines, books, etc: YES/NO

E. If there are changes at the menopause do you think these are mainly: EMOTIONAL/PHYSICAL/SOCIAL.

Would you be willing to help us in further research: YES/NO

<u>Thank you very much</u> for your co-operation. Please bring this questionnaire with you at your appointment or send it to The Ovarian Scanning Clinic, King's College Hospital, Denmark Hill, SE5.

e are interested in womens' attitude to/experience of the menopause.

lease circle the appropriate answer

Are you still having menstrual periods? YES/NO
If no, have you had a hysterectomy? YES/NO

Are you taking Hormone Replacement therapy? YES/NO
Has pre-menstrual tension been a problem for you? YES/NO

Please cirlce AGREE/DISAGREE to the following statements (please complete this section even if you are not menopausal).

1 The menopause is an experience that depends on yourattitude of mind. AGREE/DISAGREE
2 Menopause is a disturbing thing, which most women dread. AGREE/DISAGREE
3 Menopause marks the beginning of old age. AGREE/DISAGREE
4 It is good to be free from periods/menstruation at the menopause. AGREE/DISAGREE
5 After the menopause, women are more interested in sex, than before. AGREE/DISAGREE
6 The menopause is psychologically upsetting. AGREE/DISAGREE
7 Women enjoy sexual relations less after the menopause. AGREE/DISAGREE
8 The menopause brings problems with physical health AGREE/DISAGREE
9 Men are less interested in their wives after the menopause. AGREE/DISAGREE
10 Women are pleased they can no longer become pregnant after the menopause. AGREE/DISAGREE

If you are experiencing/or have experienced your menopause, please list what specific changes (if any) occurred at that time.

Was the menopause BETTER/SAME/WORSE than you expected?

Did you go to your doctor with symptoms of the menopause? YES/NO

If you are still having periods, please list what specific changes (if any) you expect to happen <u>to you</u> when you have your menopause:

Have you read about the menopause, eg magazine, books, etc YES/NO

If there are changes at the menopause, do you think these are mainly: EMOTIONAL/PHYSICAL/SOCIAL?

uld you be willing to help us in further research YES/NO

<u>ank you very much</u> for your co-operation. Please bring this questionnaire with you, t your appointment, or send it to: The Ovarian Scanning Clinic King's College Hospital mmark Hill LONDON SE5

APPENDIX 2

Classification of Occupations and Coding Index
OPCS London (1970) HMSO

I	Professional occupations
II	Intermediate occupations
III	Skilled occupations including (a) non-manual and (b) manual occupations
IV	Partly skilled occupations
V	Unskilled occupations

APPENDIX 3

Letter and WHQ sent to Prospective Sample

Camberwell
HEALTH AUTHORITY · LONDON

King's College Hospital,
Denmark Hill, London SE5 9RS.

Telephone 01-274 6222 ext 2077
Ext 2337 (Message)

David Ferrier Ward, 2nd Floor
New Ward Block, King's College Hospital

Dear

You may remember attending the Ovarian Scanning Clinic here at King's 18 mths to two years ago. At that time you kindly completed a Women's Health Questionnaire prior to your scan appointment. I am very interested to follow up some women from this study of women's health. You indicated on the questionnaire that you may be willing to help with further research.

It would help us considerably to understand more about women's health if you would complete the enclosed questionnaires. The information will be regarded in confidence. A stamped addressed envelope is enclosed for you to return the questionnaires. Do not hesitate to contact me if you have anything to discuss relating to the questionnaires or if you would like to know more about the study.

With many thanks.

Yours sincerely,

Myra Hunter.

Myra Hunter
Senior Clinical Psychologist

WOMEN'S HEALTH QUESTIONNAIRE

We are studying women and their health and would be grateful if you would help us by completing the following questions. Please circle the answer which best applies to you. We want to know your views, so please fill it in on your own.

NAME: ..... AGE:.....

ADDRESS: ..... DATE OF BIRTH: .....

..... NATIONALITY: .....

..... PLACE OF BIRTH: .....

TELEPHONE NO: ..... MARITAL STATUS: Married/Single/Separated/ Widowed/Divorced

DATE: .....

OCCUPATION: ..... HUSBAND'S OCCUPATION: .....

Are you employed at the moment: YES/NO

If so, are you working full-time or part-time: FULL-TIME/PART-TIME

How many children do you have: NONE/1/2/3/more than 3

How many still live at home: NONE/1/2/3/more than 3

Do you have grandchildren: YES/NO

Do you think your general health is: POOR/FAIR/GOOD/VERY GOOD

Is your health: BETTER/SAME/WORSE than other women of your age

Are you suffering from any physical/mental illness: YES/NO

If so state briefly what the illness is: .....

Have you suffered from any major physical/mental illness in the past: YES/NO

If so please state briefly what the illness was: .....

Are you worried about your future health: YES/NO

Do you smoke cigarettes: YES/NO

Do you take regular exercise: YES/NO

Are you overweight: YES/NO

Have you been under stress recently: YES/NO

If so please state briefly what the stress is: .....

If you are married, is your marriage: POOR/FAIR/GOOD/VERY GOOD

Have you been to see your G.P. or a hospital doctor in the last month: YES/NO

If yes, how many times: 1/2/3/4/5/more than 5

Please state briefly why:

Are you taking any medication at present: YES/NO

If so please state what you are taking:

T		BP	DP	DC

9

se tick YES or No in the appropriate box, in answer to the following tions:

(1) YES	(0) NO

Do you often worry about the possibility that you have got a serious illness?

Are you bothered by many pains and aches?

Do you find that you are often aware of various things happening in your body?

Do you worry a lot about your health?

Do you often have the symptoms of very serious illnesses?

If a disease is brought to your attention (through the radio, television, newspapers or someone you know), do you worry about getting it yourself?

If you feel ill and someone tells you that you are looking better, do you become annoyed?

Do you find that you are bothered by many different symptoms?

Is it easy for you to forget about yourself, and think about all sorts of other things?

Is it hard for you to believe the doctor when he tells you there is nothing for you to worry about?

1. Do you get the feeling that people are not taking your illness seriously enough?

12. Do you think that you worry about you health more than most people?

13. Do you think there is something seriously wrong with your body?

14. Are you afraid of illness?

A		
D		

7 10

Please indicate how you are feeling now, or how you have been feeling in the last few days, by putting a tick in the correct box in answer to each of the following items:

	YES DEFINITELY	YES SOMETIMES	NO NOT MUCH	NO NOT AT ALL
1. I wake early and then sleep badly for the rest of the night.				
2. I get very frightened or panic feelings for apparently no reason at all.				
3. I feel miserable and sad.				
4. I feel anxious when I go out of the house on my own.				
5. I have lost interest in things.				
6. I get palpitations or a sensation of 'butterflies' in my stomach or chest.				
7. I still enjoy the things I used to.				
8. I feel life is not worth living.				
9. I feel tense or 'wound up'.				
10. I have a good appetite.				
11. I am restless and can't keep still.				
12. I am more irritable than usual.				
13. I worry about growing old.				
14. I have headaches.				
15. I feel more tired than usual.				
16. I have dizzy spells.				
17. My breasts feel tender or uncomfortable.				
18. I suffer from back-ache/or pains in my limbs.				
19. I have hot flushes.				
20. I am more clumsy than usual.				

	YES DEFINITELY	YES SOMETIMES	NOT NOT MUCH	NO NOT AT ALL
21. I feel rather lively and excitable.				
22. I have abdominal cramps or discomfort.				
23. I feel sick or nauseous.				
24. I have lost interest in sexual activity.				
25. I have feelings of well-being.				
26. I have heavy periods.				
27. I suffer from night sweats.				
28. My stomach feels bloated.				
29. I have difficulty in getting off to sleep.				
30. I often notice pins and needles in my hands and feet.				
31. I am satisfied with my current sexual relationship (please omit if not sexually active).				
32. I feel physically attractive.				
33. I have difficulty in concentrating.				
34. As a result of vaginal dryness sexual intercourse has become uncomfortable (please omit if not sexually active).				
35. I need to pass urine/water more frequently than usual.				
36. My memory is poor				

37. Is it very difficult for you to cope with any of the above symptoms YES/NO

If so, which ones:

We are interested in women's expectations and experience of the menopause.

Please tick the appropriate box.

	(1) YES	(0) NO
A. Are you still having menstrual periods?		
If no, have you had a hysterectomy?		
Are you taking Hormone Replacement therapy?		
Has premenstrual tension been a problem for you?		

B. Please list what changes (if any) you think <u>most</u> women experience at the menopause:

C. <u>If you are experiencing or have experienced your menopause please list</u> what specific changes (if any) occurred at that time:

Was the menopause BETTER/SAME/WORSE than you expected?

Did you go to you doctor with symptoms of the menopause: YES/NO

<u>If you are still having periods</u> please list what specific changes (if any) you expect to happen <u>to you</u> when you have your menopause:

D. Have you read about the menopause, e.g. in magazines, books, etc: YES/NO

E. If there are changes at the menopause do you think these are mainly: EMOTIONAL/PHYSICAL/SOCIAL.

Would you be willing to help us in further research: YES/NO

1. Do you think that you are going through your menopause? YES/NO
   If so what makes you think so?

2. Have your periods become irregular?

3. Have you menstruated within the past 12 months?

4. Have you experienced hot flushes in the past 2 years? YES/NO
   If so, how often? - Several times a day/ once or twice a day/ once or twice a week/ less frequently.
   Did you find them distressing? - Yes definitely/ Yes sometimes/ No, not much/ No, not at all.
   Did they affect your daily life? YES/NO
   Have you had them recently? YES/NO
   If so how often -

   Do you find them distressing? YES/NO
   Do they interfere with daily life? YES/NO

5. Have you been to the doctor because of hot flushes or menopausal symptoms? YES/NO
   If so what did she/he say or do?

6. Have you had any other symptoms which you think have been <u>caused</u> by the menopause?

7. Have you been feeling depressed recently? YES/NO
   If so which of the following do you think has made you feel like this:-

- [ ] Financial or housing problems.
- [ ] Work.
- [ ] Family problems, eg., parents, children, illness of family member.
- [ ] Bereavements or death of family or friends.
- [ ] Hormone changes with the menopause.
- [ ] Marital, relationship problems or separations.
- [ ] Ill-health.
- [ ] Being at this stage of life.

Please tick in the box next to the main reason.

Please add other reasons or further details:

Thank you.

Appendix 4

The results of two-way analyses of variance performed to clarify relationships between variables in explaining symptom reports.

(Referred to in Study I)

Depressed Mood

Source of variation	df	Sums of Squares	F-ratio	Sign. Level
(i) Menopause allowing for hot flushes	2	2610.51	2.48	ns (p<.08)
Hot flushes allowing for menopause	1	9462.05	18.02	p<.000
Interaction	2	471.06	0.44	n.s.
Error term	468	245625.59		
(ii) Socioeconomic status allowing for children	1	4529.35	8.61	p<.004
Children allowing for S. status	1	2295.49	4.36	p<.03
Interaction	1	9.31	0.01	n.s.
Error term	470	240269.23		

Somatic Symptoms

(i) S.status allowing for employment	1	6889.58	10.62	p<.001
Employment allowing for S. status	1	1794.58	2.76	n.s. (p<.09)
Interaction	1	3.77	0.005	n.s.
Error term	470	149198.70		
(ii) S.status allowing for illness	1	6889.58	10.62	p<.001
Illness allowing for S. status	1	1725.20	2.65	n.s.
Interaction	1	44.40	0.06	n.s.
Error term	470	149198.70		
(iii) S. status allowing for children	1	6889.58	10.93	p<.001
Children allowing for S. status	1	2557.30	4.06	p<.04
Interaction	1	2785.69	4.42	p<.03
Error term	470	147370.36		

Source of variation		df	Sums of Square	F-ratio	Sign. Level
(iv)	S. status allowing for child at home	1	6468.70	9.95	p<.002
	Child at home allowing for S. status	1	4634.23	7.13	p<.008
	Interaction	1	160.91	0.24	n.s.
	Error term	470	649.77		
Anxiety/Fears					
(i)	S. status allowing for children	1	14254.47	17.64	p<.000
	Children allowing for S. status	1	5835.06	7.22	p<.007
	Interaction	1	451.12	0.55	n.s.
	Error term	470	369155.64		
(ii)	S. status allowing for employment	1	12088.88	14.48	p<.000
	Employment allowing for S. status	1	5738.07	6.87	p<.009
	Interaction	1	1160.72	1.39	n.s.
	Error term	470	410537.26		
Sleep Problems					
(i)	S. status allowing for children	1	30329.22	24.01	p<.000
	Children allowing for S. status	1	5147.17	4.07	p<.04
	Interaction	1	9.98	0.007	n.s.
	Error term	470	577273.25		
(ii)	Menopause allowing for hot flushes	2	4725.87	1.83	n.s.
	Hot flushes allowing for menopause	1	21569.61	16.77	p<.000
	Interaction	2	3176.87	1.23	n.s.
	Error term	468	661819.17		

Appendix 5

The results of fitting linear logistic models, investigating the influence of socioeconomic status and clinic vs non-clinic group membership on the proportions of women holding 10 specific beliefs

	10 Specific Beliefs				
	1	2	3	4	5
Model	Chi squ. df sign. level				
(a) Nothing	13.45 (3)	2.20 (3)	2.26 (3)	10.11 (3)	3.21 (3)
(b) s. status	12.15 (2)	0.49 (2)	2.03 (2)	7.09 (2)	3.02 (2)
(c) s.status & gp	0.40 (1)	0.21 (1)	0.08 (1)	0.79 (1)	1.11 (1)
Effect					
s. status (a-b)	1.30 (1) ns	1.71 (1) ns	0.23 (1) ns	3.02 (1) ns	0.19 (1) ns
gp controlling for s. status (b-c)	11.75 (1) p<.03	0.28 (1) ns	1.95 (1) ns	6.29 (1) p<.02	1.91 (1) ns

	6	7	8	9	10
Model	Chi squ. df sign. level				
(a) Nothing	16.68 (3)	6.26 (3)	27.31 (3)	0.67 (3)	0.17 (3)
(b) s.status	15.17 (2)	3.11 (2)	26.51 (2)	0.15 (2)	0.15 (2)
(c) s.status & gp	1.59 (1)	0.61 (1)	2.00 (1)	0.10 (1)	0.02 (1)
Effect					
s.status (a-b)	1.51 (1) ns	3.15 (1) ns	0.80 (1) ns	0.52 (1) ns	0.02 (1) ns
gp controlling for s.status (b-c)	13.58 (1) p<.005	2.49 (1) ns	24.51 (1) p<.003	0.05 (1) ns	0.13 (1) ns